IAEA
Atoms for Peace

Information Circular

INFCIRC/254/Rev.12/Part 1/Add. 1
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Communication Received from the Permanent Mission of India to the International Atomic Energy Agency Regarding Guidelines for the Export of Nuclear Material, Equipment and Technology and the Guidelines for Transfers of Nuclear-related Dual-use Equipment, Materials, Software and Related Technology

1. The Director General has received a note verbale dated 9 May 2016 from the Permanent Mission of India to the International Atomic Energy Agency providing information of India's adherence to, and decision to act in accordance with, the June 2015 versions of the "Guidelines for Nuclear Transfers" including its Annexes (INFCIRC/254, Part 1) and the "Guidelines for Transfers of Nuclear-Related Dual Use Equipment, Materials, Software, and Related Technology" including its Annex (INFCIRC/254, Part 2).

2. In light of the request expressed in the note verbale, the text of the note verbale is attached hereto. The attachments referred to in the note verbale, which contain an explanatory note titled "India's Adherence to the Nuclear Suppliers Group Guidelines" as well as the current applicable Indian legislation and regulations concerning India's national export control system in accordance with the aforementioned Guidelines, are available electronically on the Agency's official web site (www.iaea.org).

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No.Vien/110/8/2016

May 9, 2016

The Permanent Mission of India to the International Atomic Energy Agency (IAEA) presents its compliments to the Director General of the IAEA and has the honour to refer to the letter dated 8 September 2008 of Foreign Secretary, Government of India addressed to the then Director General IAEA conveying India's adherence to the Guidelines and Annexes of the Nuclear Suppliers Group (NSG). A copy of the letter is enclosed with this Note.

India has thereafter updated its export control system from time to time in support of global non-proliferation objectives and to adhere to the NSG Guidelines as per its commitment noted in the NSG document titled "Statement on Civil Nuclear Cooperation with India" which was circulated by the Agency as INFCIRC/734 (Corrected).

India would like to convey its decision to continue to act in accordance with the NSG Guidelines contained in the following documents:

(xi) The June 2015 version of the document titled "Guidelines for Nuclear Transfers" including its Annexes as reflected on the NSG website and expected to be circulated as INFCIRC/254/Rev.13/Part 1; and

(ii) The June 2015 version of the document titled "Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software, and Related Technology" including its Annex as

reflected on the NSG website and expected to be circulated as INFCIRC/254/Rev.10/Part 2.

In adopting this decision, the Government of India confirms that, while promoting the country's economic and industrial development, it considers it necessary to prevent the proliferation of nuclear weapons or other explosive nuclear devices or their diversion to acts of nuclear terrorism, and is aware of the need to separate the issue of non-proliferation or non-diversion assurances from that of commercial competition.

This decision represents a significant contribution to the development of international agreements under which nuclear energy can be developed for the purpose of meeting global energy requirements and, at the same time, counteracting the dangers of nuclear proliferation.

India requests that the Director General of the IAEA circulate to all Member States the text of this Note as well as its attachments that include an explanatory note titled "India's Adherence to the Nuclear Suppliers Group Guidelines" as well as the current applicable Indian legislation and regulations concerning India's national export control system, which are in accordance with the aforementioned Guidelines and the requirements of the NSG.

The Permanent Mission of India to the IAEA avails itself of this opportunity of reiterating to the Director General of the Agency the assurances of its highest consideration.

Vienna, 9 May 2016

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The Director General
International Atomic Energy Agency (IAEA)
Vienna

India's Adherence to the Nuclear Suppliers Group Guidelines

India adheres to the Guidelines and Annexes of the Nuclear Suppliers Group (NSG). This was formally conveyed to Director General IAEA vide a letter dated 8 September 2008. India's commitment to this effect is also contained in the NSG document titled "Statement on Civil Nuclear Cooperation with India" which was circulated by the IAEA as INFCIRC/734 (Corrected).

2. India's law based export control system has been updated from time to time in support of global non-proliferation objectives and in respect of NSG Guidelines. India would like to further demonstrate its like-mindedness with the objectives of the NSG by implementing export controls that are *inter-alia* at par with the standards set out in the current NSG Guidelines namely:

(i) The June 2015 version of the document titled "Guidelines for Nuclear Transfers" including its Annexes as reflected on the NSG website and expected to be circulated as INFCIRC/254/Rev.13/Part 1; and

(ii) The June 2015 version of the document titled "Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software, and Related Technology" including its Annex as reflected on the NSG website and expected to be circulated as INFCIRC/254/Rev.10/Part 2.

3. To this effect, **Guidelines for Nuclear Transfers (Exports)** issued under the Atomic Energy Act 1962 were updated on 28 April 2016 to reflect the Guidelines in the current NSG Part 1 document. Further, the relevant provisions of the **Foreign Trade Policy** and the **Handbook of Procedures** issued under the Foreign Trade (Development and Regulation) Act 1992 mirror the Guidelines in the current NSG Part 2 document.

4. The Schedule of **Prescribed Substances, Prescribed Equipment and Technology** issued under the Atomic Energy Act, 1962 was updated on 28 April 2016. It is now harmonized with the Annexes to the current NSG Part 1 document (Trigger List).

5. Similarly, the list of **Special Chemicals, Organisms, Materials, Equipment and Technologies** (SCOMET) issued under the Foreign Trade (Development and Regulation) Act 1992 was updated most recently on 29 April 2016. Category 0 of SCOMET is now harmonized with the Annexes to the current NSG Part 1 document while Categories 3 and 4 thereto are now harmonized with the Annex to the current NSG Part 2 document (Dual Use List).

6. Further, the Agreement between the Government of India and the IAEA for the Application of Safeguards to Civilian Nuclear Facilities and the Protocol

Additional to this Agreement has been notified by the Agency as INFCIRC/754 and INFCIRC/754/Add.6 respectively.

7. With these updates, India would like to reaffirm its adherence to the NSG Guidelines and readiness to further support international efforts to prevent the proliferation of weapons of mass destruction and their delivery systems. The current applicable Indian legislation and regulations concerning the national export control system and incidental activities is listed below:

(i) The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005;
(ii) The Atomic Energy Act, 1962 (*relevant provisions*);
(iii) The Schedule of Prescribed Substances, Prescribed Equipment and Technology issued on 28 April 2016 under the Atomic Energy Act, 1962;
(iv) Guidelines for Nuclear Transfers (Exports) issued on 28 April 2016 under the Atomic Energy Act, 1962;
(v) Guidelines for Implementation of Arrangement for Cooperation Concerning Peaceful Uses of Atomic Energy with Other Countries, 2010;
(vi) Atomic Energy (Radiation Protection) Rules, 2004;
(vii) The Foreign Trade (Development and Regulation) Act, 1992 (*relevant provisions*) and The Foreign Trade (Development and Regulation) Amendment Act, 2010;
(viii) Foreign Trade Policy issued under the Foreign Trade (Development and Regulation) Act, 1992 (*relevant provisions*);
(ix) Handbook of Procedures issued under the Foreign Trade (Development and Regulation) Act, 1992 (*relevant provisions*);
(x) List of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) issued vide notification dated 14 March 2013 and amendments thereto issued vide notifications dated 03 July 2013, 13 March 2015 and 29 April 2016 under the Foreign Trade (Development and Regulation) Act 1992;
(xi) The Customs Act, 1962 (*relevant provisions*)

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सत्यमेव जयते

विदेश सचिव
FOREIGN SECRETARY

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September 8, 2008

Excellency,

I have the honour to enclose herewith the following documents containing regulations and notifications on India's export controls:

(i) "The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act 2005" enacted on 6th June, 2005.

(ii) List of Special Chemicals, Organisms, Materials and Technology (SCOMET) issued vide notification No. 27(RE-2007)/2004-2009 dated 7th September, 2007 by the Department of Commerce, Ministry of Commerce & Industry, Government of India.

(iii) Licensing Guidelines for Exports of items listed in SCOMET list published in the Handbook of Procedures (Vol. I, paragraph 2.50) by Department of Commerce, Ministry of Commerce & Industry, Government of India on 19 April, 2007.

(iv) Guidelines for Nuclear Transfers (Exports) issued by Department of Atomic Energy vide notification No. AEA/27(1)/2005-ER dated 01 February, 2006.

Excellency, India has adhered to the Guidelines and Annexes of the Nuclear Suppliers Group.

Please accept, Excellency, the assurances of my highest consideration.

(S.Menon)

Dr. Mohammed El Baradei
Director General, IAEA
Vienna, Austria.

THE WEAPONS OF MASS DESTRUCTION AND THEIR DELIVERY SYSTEMS (PROHIBITION OF UNLAWFUL ACTIVITIES) ACT, 2005

NO. 21 OF 2005

[6th June, 2005.]

An Act to prohibit unlawful activities, in relation to weapons of mass destruction and their delivery systems and for matters connected therewith or incidental thereto.

WHEREAS India is determined to safeguard its national security as a Nuclear Weapon State;

AND WHEREAS India is committed not to transfer nuclear weapons or other nuclear explosive devices, or to transfer control over such weapons or explosive devices, and not in any way to assist, encourage, or induce any other country to manufacture nuclear weapons or other nuclear explosive devices;

AND WHEREAS India is committed to prevent a non-State actor and a terrorist from acquiring weapons of mass destruction and their delivery systems;

AND WHEREAS India is committed to the objective of global nuclear disarmament;

AND WHEREAS India is committed to its obligations as a State Party to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction;

AND WHEREAS India is exercising controls over the export of chemicals, organisms, materials, equipment and technologies in relation to weapons of mass destruction and their delivery systems under other relevant Acts;

AND WHEREAS it is considered necessary to provide for integrated legal measures to exercise controls over the export of materials, equipment and technologies and to prohibit unlawful activities in relation to weapons of mass destruction and their means of delivery.

BE it enacted by Parliament in the Fifty-sixth Year of the Republic of India as follows:-

1. Short title and commencement.-(1) This Act may be called the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

2. Act in addition to other laws.-Save as otherwise expressly provided in this Act, the provisions of this Act shall be in addition to any other relevant Act for the time being in force in relation to any matter covered under this Act.

3. Extent and application.-(1) It extends to the whole of India including its Exclusive Economic Zone.

(2) Every person shall be liable to punishment under this Act for every act or omission contrary to the provisions thereof, of which he is held guilty in India.

(3) Any person who commits an offence beyond India, which is punishable under this Act, shall be dealt with according to the provisions of this Act in the same manner as if such act had been committed in India.

(4) The provisions of this Act shall also apply to -

(a) citizens of India outside India;

(b) companies or bodies corporate, registered or incorporated in India or having their associates, branches or subsidiaries, outside India;

(c) any ship, aircraft or other means of transport registered in India or outside India, wherever it may be;

(d) foreigners while in India;

(e) persons in the service of the Government of India, within and beyond India.

(5) Notwithstanding the applicability of the provisions of any other Central Act relating to any activity provided herein, the provisions of this Act shall apply to export, transfer, re-transfer, transit and trans-shipment of material, equipment or technology of any description as are identified, designated, categorised or considered necessary by the Central Government, as pertinent or relevant to India as a Nuclear Weapon State, or to the national security of India, or to the furtherance of its foreign policy or its international obligations under any bilateral, multilateral or international treaty, Covenant, Convention or arrangement relating to weapons of mass destruction or their means of delivery, to which India is a Party.

4. Definitions.-In this Act, unless the context otherwise requires,-

(a) "biological weapons" are-

(i) microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes; and

(ii) weapons, equipment or delivery systems specially designed to use such agents or toxins for hostile purposes or in armed conflict;

(b) "brought in transit" means to bring goods from any country into India by land, air, or amphibious means of transportation, where the goods are to be taken out from India on the same conveyance on which they are brought into India without any landing in India, but does not include a conveyance in innocent passage through Indian territory, Indian territorial waters or Indian airspace of a foreign conveyance carrying goods.

Explanation I.-A conveyance is a foreign conveyance if it is not registered in India.

Explanation II.-A conveyance is in "innocent passage" if it is not engaged in relevant activity and passes through or above Indian territorial waters or airspace without stopping or anchoring in India;

(c) "chemical weapons" means,-

(i) the toxic chemicals and their precursors, except where intended for-

(a) industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;

(b) protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against chemical weapons;

(c) military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare; or

(d) law enforcement including domestic riot control purposes;
as long as the types and quantities are consistent with such purposes;

(ii) the munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in sub-clause (i), which would be released as a result of the employment of such munitions and devices; and

(iii) any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in sub-clause (ii),
together or separately;

(d) "export" shall have the meaning assigned to this expression in the Foreign Trade (Development and Regulation) Act, 1992 (22 of 1992);

(e) "fissile material" and "radioactive material" shall have the meanings assigned to these expressions in the Atomic Energy Act, 1962 (33 of 1962);

(f) "item" means materials, equipment, and technology, of any description, notified under this Act or any other Act related to relevant activity;

(g) "non-State actor" is a person or entity not acting under the lawful authority of any country;

(h) "nuclear weapon or other nuclear explosive device" means any nuclear weapon or other nuclear explosive device as may be determined by the Central Government, whose determination in the matter shall be final;

(i) "public domain" means domain that has no restrictions upon dissemination of information within or from it; the existence of any legal rights to intellectual property in that information does not remove such information from being in public domain;

(j) "relevant activity" means,-

(i) the development, production, handling, operation, maintenance, storage or dissemination of a nuclear, chemical or biological weapon; or

(ii) the development, production, maintenance, storage or dissemination of missiles specially designed for delivering any such weapon;

(k) "re-transfer" means transfer of any item notified under this Act from any country or entity to which it has been exported from India, to yet another country or entity;

(l) "technology" means any information (including information embodied in software) other than information in the public domain, that is capable of being used in-

(i) the development, production or use of any goods or software;

(ii) the development of, or the carrying out of, an industrial or commercial activity or the provision of a service of any kind.
Explanation.-When technology is described wholly or partly by reference to the uses to which it (or the goods to which it relates) may be put, it shall include services which are provided or used, or which are capable of being used, in the development, production or use of such technology or goods;

(m) "terrorist" shall have the meaning assigned to this expression in the Unlawful Activities (Prevention) Act, 1967 (37 of 1967);

(n) "trans-shipment" means to remove goods from the conveyance on which they were brought into India and to place the goods on the same or another conveyance for the purpose of taking them out of India, where these acts are carried out on a "through bill of lading", "through airway bill" or "through manifest".

Explanation.-"through bill of lading", "through airway bill" and "through manifest" means respectively a bill of lading, airway bill and manifest, for the consignment of goods from a place outside India to a destination which is also outside India without a consignee in India;

(o) "unlawful" means without the authority of the Central Government and the expression "unlawfully" shall be construed accordingly;

(p) "weapons of mass destruction" means any biological, chemical or nuclear weapons.

5. Power to identify, designate, categorise or regulate certain activities.-(1) The Central Government may identify, designate, categorise or regulate, the export, transfer, re-transfer, trans-shipment, or transit of any item related to relevant activity in such manner as may be prescribed.

(2) The Central Government may, by order published in the Official Gazette, designate or notify any item related to relevant activity for the purposes of this Act.

6. Power to appoint Advisory Committees.-For the purposes of this Act, the Central Government may appoint such Advisory Committees as it deems fit, and may appoint to them persons to exercise such powers and perform such duties as the Central Government may, by rules, prescribe.

7. Delegation of powers.-(1) Subject to the provisions of this Act and any other law for the time being in force, related to relevant activity, the Central Government shall have the power to direct or assign to any authority, in such manner as it may deem appropriate, such powers as may be necessary to implement the provisions of this Act.

(2) The Central Government may appoint a Licensing Authority and an Appellate Authority and make provisions relating to such authority and for licensing in such manner and in such form, as the Central Government may, by rules, prescribe.

(3) Without prejudice to the generality of the provisions contained in this Act, the authorities and mechanisms provided under other relevant Acts shall continue to deal with matters covered under those Acts:

Provided that in case of any doubt as to whether a matter falls within the scope of such relevant Acts or under this Act, the decision of the Central Government thereon shall be final.

8. Prohibition relating to weapons of mass destruction.-(1) No person shall unlawfully manufacture, acquire, possess, develop or transport a nuclear weapon or other nuclear explosive device and their means of delivery.

(2) No person shall unlawfully transfer, directly or indirectly, to any one a nuclear weapon or other nuclear explosive device, or transfer control over such a weapon, knowing it to be a nuclear weapon or other nuclear explosive device.

(3) No person shall unlawfully manufacture, acquire, possess, develop or transport a biological or chemical weapon or their means of delivery.

(4) No person shall unlawfully transfer, directly or indirectly, to any one biological or chemical weapons.

(5) No person shall unlawfully transfer, directly or indirectly, to any one missiles specially designed for the delivery of weapons of mass destruction.

9. Prohibition relating to non-State actor or terrorist.-No person shall, directly or indirectly, transfer to a non-State actor or terrorist, any material, equipment and technology notified under this Act or any other Act related to relevant activity:

Provided that such transfer made to a non-State actor shall not include a transfer made as such to any person acting under lawful authority in India.

10. Prohibition as regards intimidating acts.-No person shall transfer, acquire, possess, or transport fissile or radioactive material, which is intended to be used to cause, or in a threat to cause, death or serious injury or damage to property for the purpose of intimidating people or a section of the people in India or in any foreign country, or compelling the Government of India or the Government of a foreign country or an international organisation or any other person to do so or abstain from doing any act.

11. Prohibition on export.-No person shall export any material, equipment or technology knowing that such material, equipment or technology is intended to be used in the design or manufacture of a biological weapon, chemical weapon, nuclear weapon or other nuclear explosive device, or in their missile delivery systems.

12. Prohibition on brokering.-No person who is a resident in India shall, for a consideration under the terms of an actual or implied contract, knowingly facilitate the execution of any transaction which is prohibited or regulated under this Act:

Provided that a mere carriage, without knowledge, of persons, goods or technology, or provision of services, including by a public or private carrier of goods, courier, tele-communication, postal service provider or financial service provider, shall not be an offence for the purposes of this section.

13. Regulation of export, transfer, retransfer, transit and transshipment.-(1) No item notified under this Act shall be exported, transferred, re-transferred, brought in transit or transhipped except in accordance with the provisions of this Act or any other relevant Act.

(2) Any transfer of technology of an item whose export is prohibited under this Act or any other relevant Act relating to relevant activity shall be prohibited.

(3) When any technology is notified under this Act or any other relevant Act, as being subject to transfer controls, the transfer of such technology shall be restricted to the extent notified thereunder.

Explanation.-The transfer of technology may take place through either or both of the following modes of transfer, namely:-

(a) by a person or from a place within India to a person or place outside India;

(b) by a person or from a place outside India to a person, or a place, which is also outside India (but only where the transfer is by, or within the control of, person, who is a citizen of India, or any person who is a resident in India).

(4) The Central Government may notify any item as being subject to the provisions of this Act, whether or not it is covered under any other relevant Act; and when such item is exhibited, sold, supplied or transferred to any foreign entity or a foreigner who is resident, operating, visiting, studying, or conducting research or business within the territorial limits of India, or in its airspace or Exclusive Economic Zone, it shall constitute an offence.

14. Offences and penalties.-Any person who contravenes, or attempts to contravene or abets, the provisions of section 8 or section 10 of this Act, shall be punishable with imprisonment for a term which shall not be less than five years but which may extend to imprisonment for life, and shall also be liable to fine.

15. Punishment for aiding non-State actor or terrorist.-(1) Any person who, with intent to aid any non-State actor or terrorist, contravenes the provisions of section 9 of this Act, shall be punishable with imprisonment for a term which shall not be less than five years but which may extend to imprisonment for life, and shall also be liable to fine.

(2) Any person who, with intent to aid any non-State actor or terrorist, attempts to contravene or abets, or does any act preparatory to contravention of sub-section (1), shall be deemed to have contravened that provision and the provision of sub-section (1) shall apply subject to the modification that the reference to "imprisonment for life" therein shall be construed as a reference to "imprisonment for ten years".

(3) While determining the punishment under this section, the court shall take into consideration whether the accused had the knowledge about the transferee being a non-State actor or not.

16. Punishment for unauthorized export.-(1) Any person who knowingly contravenes, abets or attempts to contravene, the provisions of sub-section (4) of section 13 of this Act, shall be punishable with fine which shall not be less than three lakh rupees and which may extend to twenty lakh rupees.

(2) If any person is again convicted of the same offence under sub-section (1), then he shall be punishable for the second and every subsequent offence with imprisonment for a term which shall not be less

than six months but which may extend to five years and shall also be liable to fine.

17. Punishment for violation of other provisions of the Act.-(1) Where any person contravenes, or abets or attempts to contravene, any provision of this Act other than the provisions under sections 8, 9, 10 and sub-section (4) of section 13 of this Act, he shall be punishable with imprisonment for a term which shall not be less than six months but which may extend to five years and shall also be liable to fine.

(2) If any person is again convicted of the same offence under sub-section (1), then he shall be punishable for the second and every subsequent offence with imprisonment for a term which shall not be less than one year but which may extend to seven years and shall also be liable to fine.

18. Penalty for using false or making forged documents, etc.-Where any person signs or uses, or causes to be signed or used, any declaration, statement or document submitted to the competent authority knowing or having reason to believe that such declaration, statement or document is forged or tampered with or is false in any material particular, and relates to items notified under this Act or any other relevant Act, including those related to relevant activity, he shall be punishable with fine which shall not be less than five lakh rupees or five times the value of the materials, equipment, technology or services, whichever is more.

19. Punishment for offences with respect to which no provision has been made.-Whoever contravenes any other provision of this Act or any rule or order made thereunder for which no specific punishment is provided, shall be punishable with imprisonment for a term which may extend to one year, or with fine, or with both.

20. Offences by companies.-(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of, and was responsible to, the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where any offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to, any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.-For the purposes of this section-

(a) "company" means any body corporate and includes a firm and other association of individuals; and

(b) "director", in relation to a firm, means a partner in the firm.

21. Cognizance of offences.-No Court shall take cognizance of any offence under this Act without the previous sanction of the Central Government or any officer authorised by the Central Government in this behalf.

22. Bar of jurisdiction of civil courts.-No action or proceedings taken under section 5 and sub-sections (1) and (2) of section 7 of this Act by the Central Government or any officer authorised by it in this behalf shall be called in question in any civil court in any suit or application or by way of appeal or revision, and no injunction shall be granted by any civil court or other authority in respect of any action taken or to be taken in pursuance of any power conferred under those provisions.

23. Effect of other laws.-(1) The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act or any other instrument having effect by virtue of any enactment other than this Act.

(2) Where any act or omission constitutes an offence punishable under this Act and also under any other relevant Act, then the offender found guilty of such offence shall be liable to be punished under that Act which imposes a greater punishment.

24. Protection of action taken in good faith.-No suit, prosecution or other legal proceeding shall lie against the Central Government or any officer or authority of the Central Government or any other authority on whom powers have been conferred pursuant to this Act, for anything which is in good faith done or purported to be done in pursuance of this Act or any rule or order made thereunder.

25. Special provisions as to Central Government.-Nothing in this Act shall affect the activities of the Central Government in the discharge of its functions relating to the security or the defence of India.

26. Power to make rules.-(1) The Central Government may, by notification, make rules to carry out the provisions of this Act.

(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:-

(a) manner of regulating any item related to relevant activity under sub-section (1) of section 5;

(b) appointment of Advisory Committees, their powers and duties under section 6;

(c) appointment of Licensing and Appellate Authority and the manner of licensing under sub-section (2) of section 7; and

(d) any other matter which has to be, or may be, prescribed.

(3) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

27. Power to remove difficulties.-(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order published in the Official Gazette, make such provisions, not inconsistent with the provisions of this Act, as may appear to be necessary for removing the difficulty:
Provided that no order shall be made under this section after the expiry of the period of two years from the date of commencement of this Act.

(2) Every order made under this section shall be laid, as soon as may be after it is made, before each House of Parliament.

T.K. VISWANATHAN,

Secy. to the Govt. of India

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THE ATOMIC ENERGY ACT, 1962
NO. 33 OF 1962

[15th September, 1962]

An Act to provide for the development, control and use of atomic energy for the welfare of the people of India and for other peaceful purposes and for matters connected therewith.

Be it enacted by Parliament in the Thirteenth Year of the Republic of India as follows :-

1. Short title,extent and commencement

(1) This Act may be called the Atomic Energy Act, 1962.

(2) It extends to the whole of India.

(3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

2. Definition and interpretation

(1) In this Act, unless the context otherwise requires -

(a)"atomic energy" means energy released from atomic nuclei as a result of any process, including the fission and fusion processes;

(b) "fissile material" means uranium-233, uranium-235, plutonium or any material containing these substances or any other material that may be declared as such by notification by the Central Government;

++(bb) "Government Company" means a company in which not less than fifty one percent of the paid up share capital is held by the Central Government;

(c)"minerals" include all substances obtained or obtainable from the soil (including alluvium or rocks) by underground or surface working;

(d) "notification" means notification published in the Official Gazette;

(e) "plant" includes machinery, equipment or appliance whether affixed to land or not;

++ This has been inserted vide the Atomic Energy (Amendment) Act 1987 (N0. 29 of 1987)

(3) After considering any such objection and the report of the person appointed by it under sub-section (2), the Central Government may make such order as it may deem proper.

(4) Where the rights and liabilities of a party to a contract are transferred to the Central Government under this section, there shall be paid to that party such compensation in respect of any loss suffered by that party as may be agreed between him and the Central Government, and in default of such agreement, as may be determined by arbitration.

14. Control over production and use of atomic energy

(1) The Central Government may, subject to such rules as may be made in this behalf and by order prohibit except under a licence granted by it —

(i) the working of any mine or minerals specified in the order, being a mine or minerals from which in the opinion of the Central Government any of the prescribed substances can be obtained;

(ii) the acquisition, production, possession, use, disposal, export or import —

(a) of any of the prescribed substances; or

(b) of any minerals or other substances specified in the rules, from which in the opinion of the Central Government any of the prescribed substances can be obtained; or

(c) of any plant designed or adopted or manufactured for the production, development and use of atomic energy or for research into matters connected therewith; or

(d) of any prescribed equipment.

(2) Nothing in this section shall affect the authority of the Central Government to refuse a licence for the purpose of this section or to include in a licence such conditions as the Central Government thinks fit or to revoke a licence and the Central Government may take any action as aforesaid.

(3) Without prejudice to the generality of the foregoing provisions, the rules referred to in this section may provide for —

(a) the extent to which information in the possession of, or which has been made available to, the person granted a licence for purposes of this section, should be regarded as restricted information;

(b) the extent to which the area or premises under the control of the person to whom a licence has been granted for purposes of this section, should be regarded as a prohibited area;

(c) the conditions and criteria for location of any installation or operation of any plant in respect of which a licence has been granted or is intended to be granted for the purposes of this section including those necessary for protection against radiation and safe disposal of harmful by-products or wastes;

(d) the extent of the licensee's liability in respect of any hurt to any person or any damage to property caused by ionising radiations or any radioactive contamination either at the plant under licence or in the surrounding area;

(e) provision by licensee either by insurance or by such other means as the Central Government may approve, of sufficient funds to be available at all times to ensure settlement of any claims in connection with the use of the site or the plant under licence which have been or may be duly established against the licensee in respect of any hurt to any person or any damage to any property caused by ionising radiations emitted at the plant under licence or radioactive contamination either at the plant under licence or in surrounding areas;

(f) obligatory qualifications, security clearances, hours of employment, minimum leave and periodical medical examination of the persons employed and any other requirement or restriction or prohibition on the employer, employed persons and other persons; and

(g) such other incidental and supplementary provisions including provisions for inspection and also for the sealing of premises and seizure, retention and disposal of any article in respect of which there are reasonable grounds for suspecting that a contravention of the rules has been committed, as the Central Government considers necessary.

(4) The Central Government may also prescribe the fees payable for issue of licences under sub-section (1).

15. Requisitioning of any substance for extracting uranium or plutonium

(1) The Central Government shall have the right to require that any substance which, in the opinion of the Central Government, contains uranium, plutonium or any of their isotopes, shall be delivered to it and the Central Government may extract from that substance the uranium, plutonium or any of their isotopes contained therein and return the substance to the person concerned on payment of compensation which shall be determined in accordance with section 21;

Provided that such compensation shall not, in any case, exceed the cost incurred by the person in the production, mining or irradiation of the substance and in determining the

same no account shall be taken of the value of uranium, plutonium or any of their isotopes extracted from the substance.

(2) Nothing in this section shall prevent the Central Government from permitting, subject to such conditions as it may deem fit to impose, the use of small quantities of natural uranium for the purpose of examination, test or analysis.

16. Control over radioactive substances.

The Central Government may prohibit the manufacture, possession, use, transfer by sale or otherwise, export and import and in an emergency, transport and disposal, of any radioactive substances without its written consent.

17. Special provisions as to safety

(1) The Central Government may, as regards any class or description of premises or places, being premises or places, in which radioactive substances are manufactured, produced, mined, treated, stored or used or any radiation generating plant, equipment or appliance is used, make such provision by rules as appear to the Central Government to be necessary —

(a) to prevent injury being caused to the health of persons employed at such premises or places or other persons either by radiations, or by the ingestion of any radioactive substance;

(b) to secure that any radioactive waste products resulting from such manufacture, production, mining, treatment, storage, or use as aforesaid are disposed of safely;

(c) to prescribe qualifications of the persons for employment at such premises or places and the regulation of their hours of employment, minimum leave and periodical medical examination.

and the rules may, in particular and without prejudice to the generality of this sub-section provide for imposing requirements as to the erection or structural alterations of buildings or the carrying out of works.

(2) The Central Government may, as respects the transport of any radioactive substance or any prescribed substance specified by an order issued under this Act as being dangerous to health, make such rules as appear to be necessary to prevent injury being caused by such transport to the health of persons engaged therein and other persons.

(3) Rules made under this section may provide for imposing requirements, prohibitions and restrictions on employers, employed persons and other persons.

(4) Any person authorised by the Central Government under this section, may, on producing, if so required, a duly authenticated document showing his authority, enter at

may be, and any State Electricity Board in regard to the construction of necessary transmission lines, the matter shall be referred to the Central Electricity Authority whose decision shall be binding on the parties concerned.

(2) No provision of the Indian Electricity Act, 1910, or any rule made thereunder or of any instrument having effect by virtue of such law or rule shall have any effect so far as it is inconsistent with any of the provisions of this Act.

(3) Save as otherwise provided in this Act, the provisions of this Act shall be in addition to, and not in derogation of, the Indian Electricity Act, 1910, and the Electricity (Supply) Act, 1948.

23. Administration of Factories Act,1948

Notwithstanding anything contained in the Factories Act, 1948, the authority to administer the said Act, and to do all things for the enforcement of its provisions, including the appointment of inspecting staff and the making of rules thereunder, shall vest in the Central Government in relation to any factory owned by the Central Government or any authority or corporation established by it or a Government Company and engaged in carrying out the purposes of this Act.

24. Offences and Penalties

(1) Whoever —

(a) contravenes any order made under section 14 or any condition subject to which a licence is granted under that section; or

(b) contravenes any rules made under section 17 or any requirement, prohibition or restriction imposed under any such rule; or

(c) obstruct any person authorised by the Central Government under sub-section (4) of section 17 in the exercise of powers under that sub-section; or

(d) contravenes sub-section (2) of section 18;
shall be punishable with imprisonment for a term which may extent to five years, or with fine, or both.

(2)Whoever —

(a) fails to comply with any notice served on him under section 5 or with any terms and conditions that may be imposed on him under that section; or

(b) fails to comply with any notice served on him under section 7 or knowingly makes any untrue statement in any return or statement made in pursuance of any such notice; or

(c) obstructs any person or authority in the exercise of powers under section 8 or 9; or

(d) contravenes any other provision of this Act or any order made thereunder;
shall be punishable with imprisonment for a term which may extent to one year, or with fine, or with both.

25. Offences by companies

(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of, and was responsible to, the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly;

Provided that nothing contained in this sub-section shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where any offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to, any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation - For the purposes of this section,

(a) “company” means any body corporate and includes a firm and other association of individuals; and

(b) “director” in relation to a firm, means a partner in the firm.

26. Cognizance of offences

(1) All offences under this Act shall be cognizable under the Code of Criminal Procedure, 1898, but no action shall be taken in respect of any person for any offence under this Act except on the basis of a written complaint made -

(a) in respect of contravention of section 8, 14 or 17 or any rules or order made thereunder, by the person authorised to exercise powers of entry and inspection;

(b) in respect of any other contravention, by a person duly authorised to make such complaints by the Central Government.

(2) Proceedings in respect of contravention of section 18 shall not be instituted except with the consent of the Attorney General of India.

27. Delegation of powers

The Central Government may, by order, direct that any power conferred or any duty imposed on it by this Act shall, in such circumstances and subject to such conditions as may be specified in the direction, be exercised or discharged also
by —

(a) such officer or authority subordinate to the Central Government, or

(b) such State Government or such officer or authority subordinate to a State Government as may be specified in the direction.

28. Effect of of other laws

The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act or any other instrument having effect by virtue of any enactment other than this Act.

29. Protection of action taken in good faith

No suit, prosecution or other legal proceeding shall lie against the Government or any person or authority in respect of anything done by it or him in good faith in pursuance of this Act or of any rule or order made thereunder.

30. Power to make rules

(1) The Central Government may, by notification, make rules for carrying out the purposes of this Act.

(2) In particular, and without prejudice to the generality of the foregoing powers, such rules may provide for-

(a) declaring any information not so far published or otherwise made public as restricted information and prescribing the measures to be taken to guard against unauthorised dissemination or use thereof;

(b) declaring any area or premises as prohibited area and prescribing the measures to be taken to provide against unauthorised entry into or departure from such prohibited area;

(c) reporting of information relating to the discovery of uranium, thorium and other prescribed substances and for payment of rewards for such discoveries;

(d) control over mining or concentration of substances containing uranium;

(e) regulating by licensing and encouraging by award of concessions including rewards, floor prices and guarantees, mining of and prospecting for other prescribed substances;

(f) compulsory acquisition of prescribed substances, minerals and plants;

(g) regulating the production, import, export, transfer, refining, possession, ownership, sale, use or disposal of the prescribed substances and any other articles that in the opinion of the Central Government may be used for, or may result as a consequence of, the production, use or application of atomic energy;

(h) regulating the use of prescribed equipment;

(i) regulating the manufacture, custody, transport, transfer, sale, export, import, use or disposal of any radioactive substance;

(j)regulating the transport of such prescribed substances as are declared dangerous to health under sub-section (2) of section 17;

(k) developing, controlling, supervising and licensing the production, application and use of atomic energy;

(l) fees for issue of licences under this Act;

(m) the manner of serving notices under this Act;

(n) generally promoting co-operation among persons, institutions and countries in the production, use, application of atomic energy and in research and investigations in that field.

(3) Rules made under this Act may provide that a contravention of the rules shall, save as otherwise expressly provided in this Act, be punishable with fine which may extend to five hundred rupees.

(4) Every rule made under this Act shall be laid as soon as may be after it is made, before each House of Parliament while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if before the expiry of the session in which it is so laid or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so however that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

(TO BE PUBLISHED IN THE GAZETTE OF INDIA, PART – II, SECTION - 3, SUB-SECTION (ii), EXTRAORDINARY)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

NOTIFICATION
Mumbai, the 28 April, 2016

Subject: Updation of List of Prescribed Substances, Prescribed Equipment and Technology Under Atomic Energy Act 1962

S.O. - In pursuance of clauses (f) and (g) of sub-section (1) of Section 2 and Section 3 of the Atomic Energy Act, 1962 (No. 33 of 1962) and in supersession of the notifications of the Government of India in the Department of Atomic Energy vide number S.O. 61(E) dated 20th January 2006, the Central Government hereby notifies the substances, equipment and technology specified in the Schedule appended hereto as 'Prescribed Substances, Prescribed Equipment and Technology'.

THE SCHEDULE

Category 0 Nuclear materials, nuclear-related other materials, equipment and technology

0A PRESCRIBED SUBSTANCES

Note: Any radioactive material in Category 0A shall additionally attract the provisions of Radiation Protection Rules, 2004 made under the Atomic Energy Act, 1962 and the provisions of Section-16 of the Atomic Energy Act, 1962.

0A1 Source Material

0A101 Uranium containing the mixture of isotopes occurring in nature.

0A102 Uranium depleted in the isotope 235.

0A103 Thorium.

0A104 Any of the materials specified above in 0A101, 0A102, or 0A103 in the form of metal, alloy, chemical compound, or concentrate.

0A105 Any other material containing one or more of the foregoing.

Note 1:
Source material includes uranium and thorium ores or concentrates.

Note 2:
Exports of following items, for the use only in non-nuclear activities, to a given recipient country, within a period of one calendar year, not

exceeding the limits specified below, are not controlled:

a. Uranium (containing the mixture of isotopes in nature): 100 kilograms.
b. Depleted uranium (uranium depleted in the isotope 235 below that occurring in nature): 1000 kilograms.
c. Thorium: 1000 kilograms.

Note 3: 0A1 does not control following –

i. Uranium and thorium ores, mineral concentrates or other materials that contain less than 300 parts per million (ppm) of uranium or/and thorium;
ii. Alloys containing less than 5 % thorium;
iii. Ceramic products containing thorium, which have been manufactured for non-nuclear use.

0A2 **Special Fissionable Material**

0A201 Plutonium-239.

0A202 Uranium-233.

0A203 Uranium enriched in the isotopes 235 or 233.

0A204 Neptunium.

0A205 Any material containing one or more of the foregoing.

0A206 Such other fissionable material determined by the Central Government from time to time.

Technical note:

The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

Note:

1. The term "special fissionable material" does not include source material.
2. Any quantity of special fissionable material is prescribed substance.
3. 0A2 does not control -
   a. Plutonium with an isotopic concentration of plutonium-238 exceeding 80%, and
   b. Special fissionable material when used in gram quantities or less as a sensing component in instruments.

0A3 **Other Materials**

'Other Materials' means non-nuclear materials for reactors, nuclear related dual-use materials indicated below and such materials as determined by the Central Government from time to time.

0A301 Deuterium and heavy water

Deuterium, heavy water (deuterium oxide) and any other deuterium compound, in which the ratio of deuterium to hydrogen atoms exceeds 1:5000,

a) for use in a nuclear reactor in quantities exceeding 5 kilograms of deuterium atoms in one consignment or 25 kilograms of deuterium atoms, for any one recipient country within a period of one calendar year.
b) for use in a non-nuclear activity in quantities exceeding 200 kilograms of deuterium atoms, for any one recipient country within a period of one calendar year.

0A302 Nuclear grade graphite

Nuclear grade graphite having a purity level better than 5 parts per million (ppm) boron equivalent and with a density greater than 1.5 gram/cc -

a) for use in a nuclear reactor or any other nuclear activities in quantities exceeding 1 kilogram; .
b) for use in non-nuclear activities in quantities exceeding 30 metric tons for any one recipient country within a period of one calendar year.

Note: The item 0A302 does not cover graphite powder.

0A303 Zirconium with hafnium content of less than 1 part to 500 parts of zirconium by weight (i.e. less than 2000 ppm) in the form of metal, alloys containing more than 50% zirconium by weight, compounds, manufactures thereof, waste or scrap of any of the foregoing.

0A304 Beryllium metal, its compounds, alloys containing more than 50% beryllium by weight, manufactures thereof, and waste or scrap of any of the foregoing and its minerals / concentrates including Beryl but excluding:

a. beryllium windows used for x-ray machines or for bore-hole logging devices, and
b. beryl in the form of emerald, aquamarine or 'cut & polished' semi-precious stones for use in jewellery.

0A305 Lithium enriched in the Lithium-6 (^{6}Li) isotope to greater than its natural isotopic abundance (i.e. more than 7.5%) and the products or devices containing enriched lithium such as elemental lithium, alloys, compounds, mixtures containing lithium, manufactures thereof, waste or scrap of any of the foregoing.

0A306 Niobium and Tantalum, their metals, alloys and minerals including columbite and tantalite.

0A307 Reserved

0A308 Tritium, tritium compounds or mixtures containing tritium in which the ratio of tritium to hydrogen atoms exceeds 1 part in 1000, except when utilized in such quantities and for such purposes as for organic labelled compounds, Gas Filled Light Sources and as Tritiated Water for radiotracer studies.

0A309 Hafnium:

Hafnium metal, alloys containing more than 60% hafnium by weight, hafnium compounds containing more than 60% hafnium by weight, manufactures thereof, and waste or scrap of any of the foregoing.

0A310 Radium-226:
Radium-226 (^{226}Ra), radium-226 alloys, radium-226 compounds, mixtures containing radium-226, manufactures thereof, and products or devices containing any of the foregoing, except medical applicators and a product or device containing less than 0.37 GBq (10mCi) of Ra-226 in any form.

0A311 Boron
Boron enriched in the Boron-10 (^{10}B) isotope to greater than its natural isotopic abundance as follows:
Elemental boron, compounds, mixtures containing boron, manufactures thereof, waste or scrap of any of the foregoing.

0A312 Helium-3
Helium-3 (^{3}He), mixtures containing helium-3, and products or devices containing any of the foregoing.
Note: A product or device containing less than 1gm of Helium-3 is excluded.

0A313 'Radionuclides' appropriate for making neutron sources based on alpha-n reaction, in the following forms:

a. Elemental;
b. Compounds having a total activity of 37 GBq per kg or greater;
c. Mixtures having a total activity of 37 GBq per kg or greater;
d. Products or devices containing any of the foregoing.

Radionuclides controlled by this item include:

Actinium-225	Actinium-227	Californium-253
Curium-240	Curium-241	Curium-242
Curium-243	Curium-244	Einsteinium-253
Einsteinium-254	Gadolinium-148	Plutonium-236
Plutonium-238	Polonium-209	Polonium-210
Polonium-208	Radium-223	Thorium-228
Thorium-227	Uranium-230	Uranium-232

0B Prescribed Equipment

0B001 Nuclear Reactors; associated equipment, components, and systems especially designed, prepared, or adapted or used or intended to be used in such reactors including but not limited to:-

a. Complete nuclear reactors
b. Nuclear reactor vessels
c. Nuclear reactor fuel charging and discharging machines
d. Nuclear reactor control rods and equipment
e. Nuclear reactor pressure tubes
f. Nuclear fuel cladding: Zirconium metal tubes or zirconium alloy tubes (or assemblies of tubes), in which hafnium to zirconium ratio is 1:500 or less, for use as nuclear fuel cladding.
g. Primary coolant pumps or circulators
h. Nuclear reactor internals
i. Heat exchangers (steam generators) for use in the primary or intermediate coolant circuit of a nuclear reactor
j. Neutron detectors
k. External thermal shields.

0B002 Plants for processing, production, concentration, conversion or recovery of Prescribed Substances (such as uranium, plutonium, thorium, deuterium, heavy water, tritium, lithium); associated equipment, components and systems especially designed, prepared or adapted or used or intended to be used in such plants including but not limited to:

a. Plants for production or concentration of deuterium, heavy water or deuterium compounds-
    1. Water - Hydrogen Sulphide Exchange Towers with diameters of 1.5 m or greater and capable of operating at pressures greater than or equal to 2 MPa (300 psi), especially designed or prepared for heavy water production.
    2. Especially designed or prepared blowers and compressors for hydrogen-sulphide gas circulation. These blowers or compressors have a throughput capacity greater than or equal to 56 m^3/second (120,000 SCFM) while operating at pressures greater than or equal to 1.8 MPa (260 psi) suction and have seals designed for wet H_2S service
    3. Ammonia-Hydrogen Exchange Towers greater than or equal to 35 m in height with diameters of 1.5 m to 2.5 m capable of operating at pressures greater than 15 MPa especially designed or prepared for heavy water production
    4. Tower Internals and Stage Pumps: Tower internals and stage pumps especially designed or prepared for heavy water production. Tower internals include especially designed stage contactors which promote intimate gas/liquid contact. Stage pumps include especially designed submersible pumps for circulation of liquid ammonia within a contacting stage internal to the stage towers.
    5. Ammonia Crackers with operating pressures greater than or equal to 3 MPa especially designed or prepared for heavy water production.

6. Infrared Absorption Analyzers capable of 'on-line' hydrogen/deuterium ratio analysis
7. Catalytic Burners for conversion of enriched deuterium gas into heavy water
8. Complete heavy water upgrade systems or columns therefor
9. Ammonia synthesis converters or synthesis units for heavy water production utilizing the ammonia-hydrogen exchange process.

b. Plants for the conversion of uranium
1. Systems for the conversion of uranium ore concentrates to UO_3;
2. Systems for the conversion of UO_3 to UF_6;
3. Systems for the conversion of UO_3 to UO_2;
4. Systems for the conversion of UO_2 to UF_4;
5. Systems for the conversion of UF_4 to UF_6;
6. Systems for the conversion of UF_4 to uranium metal;
7. Systems for the conversion of UF_6 to UO_2;
8. Systems for the conversion of UF_6 to UF_4;
9. Systems for the conversion of UO_2 to UCl_4.

c. Plants for the conversion of plutonium
1. systems for the conversion of plutonium nitrate to oxide
2. systems for plutonium metal production

d. Tritium facilities or plants for the production, recovery, extraction, concentration or handling of tritium and equipment therefor including hydrogen or helium refrigeration units; and hydrogen isotope storage or purification systems using metal hydrides as the storage or purification medium.

e. Lithium isotope separation facilities or plants, and systems and equipment therefor as follows -

1. Facilities or plants for the separation of lithium isotopes;
2. Equipment for the separation of lithium isotopes based on the lithium-mercury amalgam process, as follows:
   a) Packed liquid-liquid exchange columns especially designed for lithium amalgams;
   b) Mercury or lithium amalgam pumps;
   c) Lithium amalgam electrolysis cells;
   d) Evaporators for concentrated lithium hydroxide solution;
3. Ion exchange systems especially designed for lithium isotope separation, and especially designed component parts therefor;
4. Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers) especially designed for lithium isotope separation, and especially designed component parts therefor.

0B003 Plants for reprocessing of irradiated nuclear fuel and equipment, components and systems especially designed, prepared or adapted or used or intended to be used in such plants, including but not limited to:

a. Irradiated fuel element chopping machines designed for remote operation
b. Dissolvers capable of withstanding hot and highly corrosive liquid for dissolution of irradiated nuclear fuel and which can be remotely loaded and maintained
c. Solvent extractors and solvent extraction equipment resistant to the corrosive effect of nitric acid
d. Chemical holding or storage vessels resistant to the corrosive effect of nitric acid
e. Neutron measurement systems for integration and use with automated process control systems for the reprocessing of irradiated fuel elements.
f. Industrial equipment including assemblies and components as follows:
    1. High density (lead glass or other) radiation shielding windows
    2. Radiation hardened TV cameras, or lenses therefor
    3. 'Robots' or 'end effectors' especially designed for handling high explosives; and control units therefor
    4. Remote manipulators that can be used to provide remote actions in radiochemical separation operations or hot cells

0B004 Plants for treatment, handling, storage and transportation of radioactive wastes from nuclear reactors or from plants for processing Source Materials or Special Fissionable Materials or from nuclear reprocessing plants; irradiated nuclear fuel; Special Fissionable Materials, and equipment especially designed, prepared, adapted, or intended to be used therefor.

0B005 All systems, associated equipment, components for separation or enrichment of isotopes of uranium, plutonium, lithium, boron or other elements, other than analytical instruments, especially designed, prepared, adapted, used or intended to be used therefor as follows:

0B005.a Gas centrifuges and assemblies and components especially designed or prepared for use in gas Centrifuges

1. Gas centrifuges;
2. Complete rotor assemblies; Thin-walled cylinders, or a number of interconnected thin-walled cylinders, manufactured from one or more of the high strength to density ratio materials described in the Note-1 in 0B005.a. If interconnected, the cylinders are joined together by flexible bellows or rings as described in section 0B005.a.4 following. The rotor is fitted with an internal baffle(s) and end caps, as described in section 0B005.a.5 and 0B005.a.4.6 following, if in final form.
3. Rotor tube cylinders: Especially designed or prepared thin-walled cylinders with thickness of 12 mm or less, a diameter of between 75 mm and 650 mm, and manufactured from one or more of 'high strength-to-density ratio materials' described in the Note-1 in 0B005.a;
4. Rings or bellows: Components especially designed to give local support to a rotor tube or to join together a number of rotor tubes, and the bellows is a short

cylinder of wall thickness 3 mm or less, a diameter of between 75 mm and 650 mm. These components are made from 'high strength-to-density ratio materials' described in the Note-1 in Section 0B005.a;

5. Baffles: Disc-shaped components of between 75 mm and 650 mm diameter especially designed or prepared for mounting inside a rotor tube, in order to isolate the take-off chamber from the main separation chamber and manufactured from 'high strength-to-density ratio materials' described in the Note-1 in Section 0B005.a.
6. Top or bottom caps: Especially designed or prepared disc-shaped components of between 75 mm and 400 mm diameter especially designed or prepared to fit the ends of a rotor tube, and so contain the UF_6 within the rotor tube, and in some cases to support, retain or contain as an integrated part an element of the upper bearing (top cap) or to carry the rotating elements of the motor and lower bearing (bottom cap), and manufactured from 'high strength-to-density ratio materials' described in the Note-1 in Section 0B005.a;
7. Especially prepared Magnetic Suspension Bearings with both of the following attributes:
    a. Bearing assemblies consisting of an annular magnet suspended within a housing made of or protected by "materials resistant to corrosion by UF_6" (see Note 2 of Section 0B005.a) containing a damping medium and having the magnet coupling with a pole piece or second magnet fitted to the top cap of the rotor;
    b. Active magnetic bearings especially designed or prepared for use with gas centrifuges. These bearings usually have the following characteristics: i) Designed to keep centred a rotor spinning at 600 Hz or more; and ii) Associated to a reliable electrical power supply and/or to an uninterruptible power supply (UPS) unit in order to function for more than one hour.
8. Bearings / Dampers: Especially designed or prepared bearings comprising a pivot/cup assembly mounted on a damper. The pivot is normally a hardened steel shaft with a hemisphere at one end with a means of attachment to the bottom cap described in section 0B005.a.6 at the other. The shaft may however have a hydrodynamic bearing attached. The cup is pellet-shaped with a hemispherical indentation in one surface. These components are often supplied separately to the damper.
9. Molecular pumps: Molecular pumps are high vacuum pumps consisting of especially designed or prepared cylinders having internally machined or extruded helical grooves and internally machined bores. Typical dimensions are as follows: 75 mm to 650 mm internal diameter, 10 mm or more wall thickness, with the length equal to or greater than the diameter. The grooves are typically rectangular in cross-section and 2 mm or more in depth.
10. Ring-shaped motor stators: Especially designed or prepared ring-shaped stators for high speed multiphase AC hysteresis (or reluctance) motors for synchronous operation within a vacuum at a frequency of 600 Hz or greater and a power of 40 VA or greater. The stators may consist of multi-phase windings on a laminated low loss iron core comprised of thin layers typically 2.0 mm thick or less.
11. Centrifuge housing/recipients to contain the rotor tube assembly of a gas centrifuge consisting of rigid cylinder of wall thickness up to 30 mm with precision machined ends that are parallel to each other and perpendicular to the

cylinder's longitudinal axis to within 0,05 degrees or less.

12. Scoops consisting of tubes for the extraction of UF_6 gas from within the rotor tube by a Pitot tube action and capable of being fixed to the central gas extraction system.

Note 1: The materials used for centrifuge rotating components include the following:

(a) Maraging steel capable of an ultimate tensile strength of 1.95 GPa or more;

(b) Aluminium alloys capable of an ultimate tensile strength of 0.46 GPa or more;

(c) Filamentary materials suitable for use in composite structures and having a specific modulus of 3.18×10^6 m or greater and a specific ultimate tensile strength of 7.62×10^4 m or greater ('Specific Modulus' is the Young's Modulus in N/m^2 divided by the specific weight in N/m^3; 'Specific Ultimate Tensile Strength' is the ultimate tensile strength in N/m^2 divided by the specific weight in N/m^3).

Note 2: Some of the items listed below either come into direct contact with the UF_6 process gas or directly control the centrifuges and the passage of the gas from centrifuge to centrifuge and cascade to cascade. Materials resistant to corrosion by UF_6 include copper, copper alloys, stainless steel, aluminium, aluminium oxide, aluminium alloys, nickel or alloys containing 60% or more nickel and fluorinated hydrocarbon polymers.

0B005.b Especially designed or prepared auxiliary systems, equipment and components for gas centrifuge enrichment plants

1. Machine header piping systems for handling UF_6 within the centrifuge cascades;
2. Frequency changers (converters or inverters) especially designed or prepared to supply motor stators for gas centrifuge enrichment, having all of the following characteristics, and especially designed components therefor:
   a. A multiphase frequency output of 600 Hz or greater; and
   b. High stability (with frequency control better than 0.2 %).

0B005.c Especially designed or prepared assemblies and components for use in gaseous diffusion enrichment

1. Gaseous diffusion barriers and barrier materials resistant to corrosion by UF_6;
2. Gaseous diffuser housings made of or protected by "materials resistant to corrosion by UF_6";
3. Compressors (positive displacement, centrifugal and axial flow types) or gas blowers with a suction volume capacity of 1 m^3 /min or more of UF_6, discharge pressure up to 500 kPa and having a pressure ratio of 10:1 or less designed for long term operation in the UF_6 environment and made of or protected by "materials resistant to corrosion by UF_6".

0B005.d Especially designed or prepared auxiliary systems, equipment and components for use in gaseous diffusion enrichment:

1. Piping systems and header systems for handling UF_6 within the gaseous diffusion cascades.

0B005.e Especially designed or prepared systems, equipment and components for use in aerodynamic enrichment plants:

1. Especially designed or prepared separation nozzles and assemblies thereof. The separation nozzles consist of slit-shaped, curved channels having a radius of curvature less than 1 mm, made of materials resistant to corrosion by UF_6 and having a knife-edge within the nozzle that separates the gas flowing through the nozzle into two fractions;
2. Especially designed or prepared vortex tubes and assemblies thereof. The vortex tubes are cylindrical or tapered, made of or protected by materials resistant to corrosion by UF_6 (see Note 2 of Section 0B005.a), and with one or more tangential inlets. The tubes may be equipped with nozzle type appendages at either or both ends;
3. Especially designed or prepared compressors or gas-blowers made of or protected by materials resistant to corrosion by the UF_6/carrier gas (hydrogen or helium) mixture;
4. Especially designed or prepared separation element housings made of or protected by materials resistant to corrosion by UF_6, for containing vortex tubes or separation nozzles;
5. Especially designed or prepared header-piping systems, made of or protected by materials resistant to corrosion by UF_6, for handling UF_6 within the aerodynamic cascades;
6. UF_6/carrier gas separation systems for separating UF_6 from carrier gas (hydrogen or helium).

0B005.f Especially designed or prepared systems, equipment and components for use in chemical exchange or ion exchange enrichment plants.

1. Countercurrent Liquid-liquid exchange columns (Chemical exchange), having mechanical power input, especially designed or prepared for uranium enrichment using the chemical exchange process. For corrosion resistance to concentrated hydrochloric acid solutions, these columns and their internals are normally made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions. The stage residence time of the columns is normally designed to be 30 seconds or less.
2. Liquid-liquid centrifugal contactors (Chemical exchange), especially designed or prepared for uranium enrichment using the chemical exchange process. Such contractors are made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions, The stage residence time of the columns is normally designed to be 30 seconds or less.
3. Uranium reduction systems and equipment (Chemical exchange):
    a. Especially designed or prepared electrochemical reduction cells to reduce uranium from one valence state to another for uranium enrichment using the chemical exchange process. The cell materials in contact with process solutions must be corrosion resistant to concentrated

hydrochloric acid solutions;

b. Especially designed or prepared systems consisting of solvent extraction equipment and pumps or other transfer devices at the product end of the cascade for taking the U^{+4} out of the organic stream.

4. Feed preparation systems (Chemical exchange) consisting of dissolution, solvent extraction and/or ion exchange equipment for producing high-purity uranium chloride.
5. Uranium oxidation systems (Chemical exchange) for oxidation of U^{+3} to U^{+4}

6. Fast-reacting ion exchange resins/adsorbents (Ion exchange):
   Fast-reacting ion-exchange resins or adsorbents, especially designed or prepared for uranium enrichment using the chemical exchange process, including porous macroreticular resins, and/or pellicular structures and other composite structures in any suitable form including particles or fibres chemically resistant to concentrated hydrochloric acid solutions.

7. Ion exchange columns (Ion exchange):
   Cylindrical columns for containing and supporting packed beds of ion exchange resin/adsorbent and made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions.

8. Ion exchange reflux systems (Ion exchange):
   Chemical or electrochemical oxidation or reduction systems for regeneration of the chemical oxidizing or reducing agent(s) used in ion exchange enrichment cascades.

0B005.g Especially designed or prepared systems, equipment and components for use in laser-based enrichment plants.

1. Uranium vaporization systems (atomic vapour based methods)
2. Liquid or vapour uranium metal handling systems and components (atomic vapour based methods)
3. Uranium metal 'product' and 'tails' collector assemblies (atomic vapour based methods)
4. Separator module housings (atomic vapour based methods)
5. Supersonic expansion nozzles (molecular based methods)
6. 'Product' or 'tails' collectors (molecular based methods)
7. UF_6/carrier gas compressors (molecular based methods)
8. Rotary shaft seals (molecular based methods)
9. Fluorination systems (molecular based methods)
10. UF_6/carrier gas separation systems (molecular based methods)
11. 'Lasers' or 'laser systems or components' for the separation of uranium isotopes.

0B005.h Especially designed or prepared systems, equipment and components for use in plasma separation enrichment plants

1. Microwave power sources and antennae: Especially designed or prepared microwave power sources and antennae for producing or accelerating ions and having the following characteristics: greater than 30 GHz frequency and greater

than 50 kW mean power output for ion production.
2. Radio frequency ion excitation coils for frequencies of more than 100 kHz
3. Uranium plasma generation systems
4. Uranium metal 'product' and 'tails' collector assemblies made of or protected by materials resistant to the heat and corrosion of uranium metal vapour.
5. Separator module housings (cylindrical vessels) for containing the uranium plasma source, radio-frequency drive coil and the 'product' and 'tails' collectors.

0B005.i Especially designed or prepared systems, equipment and components for use in electromagnetic enrichment plants.

1. Electromagnetic isotope separators for separation of uranium isotopes and equipment and components therefor, including ion sources (consisting of a vapour source, ionizer, and beam accelerator), ion collectors (consisting of collector plates), vacuum housings and magnet pole pieces;
2. High voltage power supplies for ion sources: Especially designed or prepared high-voltage power supplies for ion sources, having all of the following characteristics: capable of continuous operation, output voltage of 20,000 V or greater, output current of 1 A or greater, and voltage regulation of better than 0.01% over a time period of 8 hours
3. High-power, direct current magnet power supplies: Especially designed or prepared high-power, direct current magnet power supplies having all of the following characteristics: capable of continuously producing a current output of 500 A or greater at a voltage of 100 V or greater and with a current or voltage regulation better than 0.01% over a period of 8 hours.

0B005.j Especially designed or prepared other equipment and components for use in enrichment plants:

1. Feed systems / product and tails withdrawal systems such as feed autoclaves, ovens, or systems, desublimers, cold traps or pumps, solidification or liquefaction stations, 'product' or 'tails' stations used for handling UF_6;
2. Special shut-off valves, control valves, bellow sealed valves, manual or automated, shut-off or control, made of or protected by materials resistant to corrosion by UF_6;
3. UF_6 mass spectrometers / ion sources capable of taking on-line samples from UF_6 gas stream; ;
4. Rotary shaft seals for compressors or blowers;
5. Heat exchangers made of or protected by "materials resistant to corrosion by UF_6";
6. Vacuum systems including vacuum manifolds, vacuum headers and vacuum pumps made of, or protected by, materials resistant to corrosion by UF_6.

Note 1: Controls under category 0B005 also apply to the plants and equipment that are intended for isotope separation of other elements.
Note 2: "Other elements" means all elements other than hydrogen, uranium and plutonium.

0B006 Plants for the fabrication of nuclear reactor fuel elements, and equipment especially designed or prepared therefor including but not limited to:

a. fully automatic pellet inspection stations especially designed or prepared for checking final dimensions and surface defects of the fuel pellets;
b. automatic welding machines especially designed or prepared for welding end caps onto the fuel pins (or rods);
c. automatic test and inspection stations especially designed or prepared for checking the integrity of completed fuel pins (or rods);
d. systems especially designed or prepared to manufacture nuclear fuel cladding.

Item 'c' typically includes equipment for: 1) x-ray examination of pin (or rod) end cap welds, 2) helium leak detection from pressurized pins (or rods), and 3) gamma-ray scanning of the pins (or rods) to check for correct loading of the fuel pellets inside.

0B007 Plants or systems for production, handling, storage and transportation of Radioisotopes in quantities exceeding 100 Curies (3.7×10^{12} Becquerel).

0B008 Neutron generators including neutron chain reacting assemblies and fusion assemblies of all kinds for producing fissile materials.

0C Technology and software

Technology and software for the development, production or use of prescribed substances or prescribed equipment specified in 0A or 0B.

Sd/-
(Sanjeev Sood)
Joint Secretary to the Government of India
F.No.32/02/2016-ER

TO BE PUBLISHED IN THE GAZETTE OF INDIA (EXTRAORDINARY)
PART-I SECTION-I

No.32/02/2016-ER
Government of India
(Bharat Sarkar)
Department of Atomic Energy
(Parmanu Oorja Vibhag)
Mumbai, the 28 April, 2016

RESOLUTION

Subject: Guidelines for Nuclear Transfers (Exports)

No. --Under the provisions contained in clause (f) and (g) of Sub-Section (1) of Section 2 and Section 3 of the Atomic Energy Act, 1962 (No.33 of 1962), the Department of Atomic Energy has notified the Schedule of "Prescribed Substances, Prescribed Equipment and Technology" on 28 April, 2016. Further, to regulate the exports of these items the Department of Atomic Energy had formulated a set of "Guidelines for Nuclear Transfers (Exports)"vide No. AEA/27(1)/2005-ER dated 01st February, 2006. In supersession of the notification No. AEA/27(1)/2005-ER dated 01st February, 2006, the Central Government hereby issues a set of guidelines entitled as **"Guidelines for Nuclear Transfers (Exports)"** to regulate the exports / transfers of the items referred in these guidelines.

Export of prescribed substances, prescribed equipment or transfer of related technology to any country will be governed by the following guidelines and export controls shall apply to nuclear transfers to any country.

Notes:

Prescribed substance means any substance or material including any mineral which the Central Government may by notification, prescribe being a substance which in quantity or in concentration or both in excess of the limits prescribed in this behalf in that notification, is or may be used for the production or use of atomic energy or research into matters connected therewith. Prescribed substances contain source material, special fissionable material and non-nuclear materials for nuclear reactor

e.g. nuclear grade graphite and heavy water and also include certain other materials (dual-use materials).

Prescribed equipment means any property which the Central Government may, by notification, prescribe, being a property which in its opinion is specially designed or adapted or which is used or intended to be used for the production or utilization of any prescribed substance or for the production or utilization of atomic energy, radioactive substances or radiation, but does not include mining, milling, laboratory and other equipment not so specially designed or adapted and not incorporated in equipment used or intended to be used for any of the purposes aforesaid. Prescribed equipment includes nuclear reactors, fuel reprocessing plants, fuel fabrication plants, uranium enrichment plants, uranium & plutonium conversion facilities, heavy water production plants and associated equipment specially designed, prepared, adapted or used or intended to be used in such plants/facilities and also includes nuclear related dual-use equipment and components.

Technology" means any information (including information embodied in software) other than information in the public domain, that is capable of being used in-

(i) the development, production or use of any goods or software;

(ii) the development of, or the carrying out of, an industrial or commercial activity or the provision of a service of any kind.

Explanation.-When technology is described wholly or partly by reference to the uses to which it (or the goods to which it relates) may be put, it shall include services which are provided or used, or which are capable of being used, in the development, production or use of such technology or goods;

Exporter may refer to the Government of India notification on the prescribed substances and prescribed equipment for details.

A. SPECIFIC GUIDELINES

1. Prohibition of export for development of nuclear explosives:

a) Export of any prescribed substance, prescribed equipment or related technology, to any country for the development of nuclear explosive device or use in a nuclear explosive device shall be prohibited.

b) Export of any prescribed substance, prescribed equipment or related technology shall not be authorized for use in nuclear explosive activity, or when there is an unacceptable risk of diversion to the development of nuclear explosive device or use in a nuclear explosive device or to acts of nuclear terrorism.

c) Transfer of the following items (prescribed substances and prescribed equipment) and related technology shall be authorized only upon formal governmental assurances from recipients explicitly excluding uses which would result in any nuclear explosive device:

    i. Source material, special fissionable material, and non-nuclear material for reactors (nuclear grade graphite and heavy water).
    ii. Nuclear reactors, fuel reprocessing plants, fuel fabrication plants, uranium enrichment plants, uranium & plutonium conversion facilities, heavy water production plants, tritium recovery plants and associated equipment specially designed or adapted or used or intended to be used in such plants/facilities.

(For detailed clarification on items indicated in c (i) and c (ii), exporters may refer to Government of India notification on prescribed substances, prescribed equipment and related technology).

2. Physical protection:

a. All nuclear materials and facilities referred to under paragraph 1.c (i) and 1.c (ii) should be placed under effective physical protection levels to prevent unauthorized use and handling, consistent with the relevant IAEA recommendations, in particular those set out in INFCIRC/225. The levels of physical protection to be ensured in relation to the type of materials, equipment and facilities, shall also be as per the recommendations of Government of India or as agreed upon in the international conventions, to which India is a party.

b. The implementation of measures of physical protection in the recipient country is the responsibility of the Government of that country. However, the

levels of physical protection on which these measures have to be based, shall be the subject of an agreement between the supplier and the recipient.

c. In each case special arrangements shall be made for a clear definition of responsibilities for the transport of items referred to under paragraph 1.c. (i) and 1.c (ii).

3. Safeguards:

a) Relevant IAEA safeguards as applicable should be applied to any material or equipment referred to under paragraph 1.c. (i) and 1.c (ii) or related technology proposed to be exported to any country. Government of India shall authorize export of such items only when the relevant IAEA safeguards agreement is in force.

b) Transfer of items referred to in paragraph 1.c. (i) and 1.c (ii) or related technology to a recipient country with relevant IAEA Safeguards agreement in place, shall be authorized only upon formal governmental assurances from the recipient that ;

   i. if the above mentioned agreement should be terminated the recipient will bring into force an agreement with the IAEA based on existing IAEA model safeguards agreements requiring the application of safeguards on all above referred items or related technology transferred by the supplier or processed or produced or used in connection with such transfers.

   ii. If the IAEA decides that the application of IAEA safeguards is no longer possible, the supplier and recipient should elaborate appropriate verification measures. If the recipient does not accept these measures, it should allow at the request of the supplier the restitution of transferred and derived above referred items.

c) Under agreements to which the policy referred to in paragraph 3 (a) and 3 (b) does not apply, transfer of items referred in paragraph 1.c. (i) and 1.c (ii) or related technology shall be authorised only when covered by IAEA safeguards

with duration and coverage provisions in conformity with IAEA document GOV/1621.

d) Further, the Government of India may consider safeguards related other requirements whenever appropriate.

4. **Government of India reserves the right to apply additional conditions of supply as a matter of national policy.**

5. Special controls on sensitive exports:

Government of India shall exercise restraint in the transfer of sensitive facilities, equipment, technology and material usable for nuclear weapons or other nuclear explosive devices.

a) Following criteria shall be taken into account in connection with the transfer of enrichment and reprocessing facilities, and equipment and technology therefor:

(i) Adherence of non-proliferation principles by a recipient state, and whether it is in full compliance with its non-proliferation obligations.

(ii) Whether the recipient state is in breach of its obligations to comply with its safeguards agreement and whether the IAEA has reported it as a State where the IAEA is currently unable to implement its safeguards agreement.

(iii) Implementation of effective export controls.

(iv) Whether the recipient state has concluded an Inter-Governmental Agreement with the Government of India including assurances regarding non-explosive use, appropriate IAEA safeguards as applicable, and retransfers.

(v) Commitment to apply mutually agreed standards of physical protection based on current international guidelines, and

(vi)Commitment to IAEA safety standards and adherence to accepted international safety conventions.

b) It should be ensured that enrichment and reprocessing facilities, equipment and technology are intended for peaceful purposes only. Transfers shall be authorized

only when the recipient has brought into force a relevant IAEA safeguards Agreement, and an Additional Protocol based on Model Additional Protocol as applicable to the recipient state.

6. Special controls on export of enrichment facilities, equipment and technology:

With regard to a transfer of an enrichment facility, equipment or technology therefor, the recipient state should agree and provide a legally binding undertaking that neither the transferred facility, nor any facility incorporating such equipment or based on such technology, will be modified, replicated, designed or operated for the production of greater than 20% enriched uranium.

7. Controls on supplied or derived material usable for nuclear weapons or other nuclear explosive devices:

Government of India shall in order to advance the objectives of these guidelines and to provide opportunities further to reduce the risk of proliferation, include, whenever appropriate and practicable, in agreements on supply of source material or special fissionable material or of facilities which produce material usable for nuclear weapons or other nuclear explosive devices, provisions calling for mutual agreement between the Government of India and the recipient on arrangements for reprocessing, storage, alteration, use, transfer or re-transfer of any material usable for nuclear weapons or other nuclear explosive devices involved.

8. Controls on re-transfer:

(a) Government of India shall authorize the transfer of items referred to under paragraph 1.c. (i) and 1.c (ii) or related technology only upon the recipient's assurance that in the case of:

1. re-transfer of such items or related technology,

   or

2. transfer of items indicated at 1.c. (i) and 1.c (ii) derived from facilities or the materials originally transferred by the supplier or with the help of equipment or technology originally transferred by the supplier;

the recipient of the re-transfer or transfer will have provided the same assurances as those required by the supplier for the original transfer.

(b) In addition the consent of the Government of India should be required for:

1. any re-transfer of items referred to under paragraph 1.c. (i) and 1.c (ii) or related technology,
2. any re-transfer of enrichment, reprocessing or heavy water production facilities, equipment or related technology and for any transfer of facilities or equipment of the same type derived from items originally transferred by the supplier;
3. any re-transfer of heavy water or material usable for nuclear weapons or other nuclear explosive devices.

(c) To ensure the consent right as defined under paragraph 8(b), government to government assurances will be required for any relevant original transfer.

9. Non-proliferation Principle:

Notwithstanding any other provisions of these guidelines, Government of India shall authorize transfer of items or related technology identified in the Schedule only when the Licensing Authority is satisfied that the transfers would not contribute to the development of nuclear weapons or other nuclear explosive devices or be diverted to acts of nuclear terrorism.

B. GENERAL GUIDELINES

1. Export of any prescribed substance, prescribed equipment or related technology shall be permitted only against an export license issued in this behalf unless export is prohibited. Each and every application shall be scrutinized on case-by-case basis and on the merit of each case. Notwithstanding the specific guidelines as applicable, the general guidelines will be applicable in all the cases and following relevant factors shall be taken into consideration while examining the applications for export Licenses.

2. Whether the recipient state has a relevant IAEA safeguards agreement in force.

3. Whether the equipment, materials, software or related technology to be transferred is appropriate for the stated end-use and whether that stated end-use is appropriate for the end-user.

4. Whether the equipment, materials, software or related technology to be transferred is to be used in research on or development, design, manufacture, construction, operation or maintenance of any reprocessing or enrichment facility.

5. Whether governmental actions, statements and policies of the recipient state are supportive of nuclear non-proliferation and whether the recipient state is in compliance with its international obligations in the field of nuclear related activities.

6. Whether the end-user has been engaged in clandestine or illegal procurement activities.

7. Whether a transfer has not been authorised previously to the end-user or whether the end-user has diverted for purposes inconsistent with the Guidelines any transfer previously authorized.

8. Whether there is reason to believe that there is a risk of diversion to acts of nuclear terrorism and

9. Whether there is a risk of retransfers of any prescribed substance, prescribed equipment or related technology or software or of transfers of any replica thereof as a result of a failure by the recipient State to develop and maintain appropriate, effective national export and transhipment controls.

C. CONDITIONS FOR TRANSFER

In the process of determining that the transfer will not pose any unacceptable risk of diversion, exporter should obtain the following from the recipient and furnish the

same along with export license application to the Licensing Authority in the Department of Atomic Energy, Government of India:

1. A statement from the end-user specifying the end-uses.

2. A statement from the end-user specifying that the proposed transfer will be used only for the stated end-use.

3. A statement from the end-user specifying end-use locations of the proposed transfers and

4. A statement from the end-user that neither the items, nor replicas, nor derivatives thereof shall be re-transferred without the consent of the Government of India.

5. An assurance explicitly stating that the proposed transfer or any replica or derivatives thereof will not be used in the production, development or use in nuclear explosive device.

6. A statement from the end-user specifying that he shall facilitate such verifications as and when required by the Government of India. If an end-user refuses to allow such verifications, export licenses to that end-user will be denied until such time as such verifications are conducted.

D. CONSENT RIGHTS OVER RETRANSFERS

Before authorizing the transfer of materials or equipment identified in the Schedule of prescribed substances and prescribed equipment, or related technology to any country the recipient should provide assurances that the consent of Government of India will be secured, prior to any retransfer to a third country of the equipment, materials, software, or related technology, or any replica thereof.

E. GENERAL NOTE

1 .For the purpose of these guidelines the description of any item in the referred Schedule in these guidelines includes that item in either new or second-hand condition.

2. When the description of any item in the Schedule referred to in these guidelines contains no qualifications or specifications, it is regarded as including all varieties of that item.

3. Exporter may consult the licencing authority for the transfer of items not listed in the Schedule referred to in these guidelines if the items in question are or may be intended, in their entirety or in part, for use in connection with a “nuclear explosive activity”, and may obtain an authorisation as deemed necessary.

Sd/-

(Sanjeev Sood)
Joint Secretary to the Government of India

FORM A

Government of India
Department of Atomic Energy

Application for licence for mining & milling of minerals containing prescribed substances and for handling such substances

1.* Name of the applicant :

2. Address of the applicant :

3. Installation for which licence is being applied for :

4. Name and designation of the Head of the Installation :

5. Names of the individuals who are entrusted with administration of radiation protection and industrial safety at the installation :

6. Proposed date of starting the operations :

7. Are the workers provided with facilities of :

   i) External Monitoring
   ii) Internal Dosimetry
   iii) Industrial hygiene

and safety and

iv) Medical surveillance

---

* Complete address of the applicant and the installation with Telephone numbers (during and outside office hours), telegraphic address and telex numbers, if any, may please be furnished in the space provided below :-

8. Give details of the qualifications, training and experience, if any, of the persons in charge of the operation involving prescribed substances (Use additional sheet if necessary).

Department	Name of the of person in-charge	Academic qualifications	Type of training or experience	When and where the training and experience were gained	Duration of training and experience	Maximum amount of prescribed substances handled so far
1	2	3	4	5	6	7

9. (A) Particulars of operations for which this application is made (add extra pages, if necessary)

Sr. No.	Type of operations involving prescr-ibed substances	Estimated reserves of pres-cribed substances (in case of mining operations)	Physical and Chemical form of the initial material	Physical and Chemical form of end product	Concen-tration of prescribed substance in the feed material	Percentage recovery of prescribed substance	Annual Production/ quantity handled per year	Purpose for which prescribed substance is to be recovered
1	2	3	4	5	6	7	8	9

9. (B) Particulars of tailings and effluents generated (add extra pages, if necessary)

Estimate of tailings produced annually	Method of treatment of the tailings	Method and location of final disposal of the tailings	Estimate of volume of effluents produced annually (describe effluents)	Method of treatment of the effluents	Method and location of final disposal of effluents	Monitoring systems provided in the pathways of	
						Tailings	Effluents
1	2	3	4	5	6	7	8

10. Details of staff available in various departments including the safety and medical departments :-

STAFF STRENGTH

Department	Technical	Skilled	Unskilled

11. (A) If operations are to be carried out in a plant, please indicate as appropriate-

i) The Plant is yet to be built

ii) Plant is already built and equipped

iii) Existing plant is to be modified as per details enclosed

(B) If mining operations are to be carried out - please indicate type of mining Opencast/ Underground

* 12. Relevant background information pertaining to the current operations (when existing operations are to be regularised by this application)

* 13. Detailed information relating to proposed operations (new applicants):-

a) Information on operation sites, their environment and other relevant details.

b) Details of procedures and processes that will be used for mining, milling and/or for handling the minerals and materials containing the prescribed substances.

c) Details of safety and monitoring equipment provided in the installation (furnish details and technical specifications including those of portable instruments).

d) Information regarding transport of prescribed substances from one site of operation to another site :-

i) Container details

ii) Mode of transport

e) Details of assessment of radiation and other health hazard to the local population during normal operations and methods for monitoring and controlling such hazards.

f)Brief assessment of maximum credible hazard to local population in the event of an accident and proposed remedial action.

* 14. List of equipment (along with their specifications) available with the associated laboratories where the prescribed substances will be handled. (Please give details of equipment under each category).

A) Handling Equipment : (e.g. remote control tongs, pipettes, etc.)
B) Protection Devices : (i.e. lead bricks, rubber gloves, respirators etc.)
C) Laboratory Accessories : (e.g. stainless steel trays/ sinks, foot operated waste bins, fume hoods, gloved boxes, etc.)
D) Radiation Detection/Measurement Equipment : (e.g. area survey meters, contamination monitors, air samplers, counters, etc.)
E) Details of storage facilities provided for the prescribed substances.
F) Details of ventilation facilities incorporated in the installation.

---

* Kindly furnish details on a separate sheet, if necessary.

15. Proposed procedures for treatment and disposal of radioactive and other hazardous wastes (solid, liquid and gases).

16. Radiation safety measures which will be taken at the time of termination of work :-
    i) Proposed date of completion of work.
    ii) Steps that will be taken to restore normal conditions at site, on termination of operations.

17. Please enclose :
    i) TOPOGRAPHICAL MAP of the area
    (1:63360 scale) extending to a radius of 30 Km all around the site, showing the natural features, nature of habitation and land utilisation in the area.
    ii) A SITE PLAN of the installation (1:500 scale)
    iii) ARCHITECTURAL BLUEPRINTS (1:50 scale) showing the layout of equipment and processes in the individual buildings.

18. Any additional relevant information which the applicant may like to furnish in support of his application.

19. I hereby certify that,
    (a) all the statements made above are correct to the best of my knowledge and belief.
    (b) no operations will be carried out for purposes other than those specified under item 9 of this form.
    (c) prescribed substances will not be moved from the authorised place without prior approval of the Licensing Authority.
    (d) prescribed substances will be transported only in accordance with the relevant safety regulations.
    (e) full facilities will be accorded by us to any authorised representative of the Competent Authority or the Licensing Authority to inspect the installations at any time.
    (f) radiation surveillance and medical surveillance of all persons engaged in radiation work, as required by the Competent Authority will be duly carried out.
    (g) the prescribed substances will not be sold, rented or transferred to any other person, without prior approval of the Competent Authority and the Licensing Authority.

(h) all recommendations that may be made from time to time by the Competent Authority in respect of radiation safety measures will be duly implemented.
(i) duly qualified/experienced Safety Officer/Radiological Safety Officer will be appointed before the commencement of the operations.
(j) any changes in the personnel listed in this application will be intimated forthwith to the Licensing Authority.

Date : _____

_____
Signature of the applicant
Institution & Seal

TO BE PUBLISHED IN THE GAZETTE OF INDIA (EXTRA ORDINARY)
PART- I SECTION-I

No.1/10/8/2009-ER
Government of India
(Bharat Sarkar)
Department of Atomic Energy
(Parmanu Oorja Vibhag)
Mumbai, the June 4 , 2010

RESOLUTION

Subject : Guidelines for implementation of arrangements for cooperation concerning peaceful uses of atomic energy with other Countries.

Pursuant to the provisions of the Atomic Energy Act, 1962 as amended from time to time, the Department of Atomic Energy, Government of India (hereinafter referred to as the 'Department') has notified a list of Prescribed Substances, Prescribed Equipment and Technology vide notification No. S.O. 61(E) dated 18th January 2006. The Department has also issued 'Guidelines for Nuclear Transfers (Exports) vide notification No.AEA/27(1)/2005-ER dated 1st February 2006 and all exports will continue to be governed by these guidelines.

2. Government is keen to promote civil nuclear cooperation and trade with other countries to produce, develop, use, and dispose of atomic energy, including carrying out research connected therewith. The Government intends to encourage the development of commercial relations with any country in the area of atomic energy, under bilateral or multilateral agreements for cooperation (hereinafter referred to as the 'Agreement') that it has entered or may enter into with any country (hereinafter referred to as a 'cooperating country'). The Government may also allow supplies of nuclear material, non-nuclear material, equipment, components, information and technology listed and defined in Schedule-I hereto (hereinafter referred to as the 'Scheduled items') from countries willing to trade them with India without a formal bilateral agreement of cooperation with such countries (hereinafter referred to as a 'trading country'). Supply of any scheduled item from such country shall be based on assurances from and agreed to by the Government of India (hereinafter referred

to as the 'assurances'). The supply of the Scheduled items shall be in accordance with the relevant agreement and assurances.

3. Copies of the Agreements in force for the cooperation concerning peaceful uses of atomic energy with other countries would be made available on the website of the Department.

4. These Agreements provide for the transfer of nuclear material, non-nuclear material, equipment, components, information and technology directly between the Governments or through authorized / designated persons. Any such transfer is subject to the conditions stipulated in the Agreements which *inter-alia* include peaceful-use assurances, application of IAEA safeguards, provision of adequate physical protection, conditions for retransfer, confidentiality of information and intellectual property rights.

Authorization

5. A person in India who intends to enter into commercial relationship, collaboration, cooperation or contract (hereinafter referred to as an 'arrangement') or has already entered into such an arrangement with persons in a cooperating country or a trading country (hereinafter referred to as a Supplier), as the case may be, shall seek an authorization (hereinafter referred to as the 'authorization') for such an arrangement.

6. A person, who has been granted an authorization, shall be required to ensure that the arrangement proposed to be entered or already entered into by him, meets all conditions stipulated in the Agreement with a cooperating country, or is consistent with the assurances agreed to by the Government of India.

7. A person, who has been granted an authorization, shall also ensure that such an arrangement with a person in a cooperating country or a trading country shall not hinder or otherwise interfere with any other activities in India involving the use of nuclear material, non-nuclear material, equipment, components, information or

technology produced, acquired or developed by persons in India and / or the Government of India independent of the Agreement.

8. Additional Secretary, Department of Atomic Energy, Anushakti Bhavan, Chatrapati Shivaji Maharaj Marg, Mumbai – 400001, is designated as the competent authority (hereinafter referred to as the 'Competent Authority') for grant of authorization including prescribing application fee.

Application

9. Authorization referred to in paragraph 8 may be granted on an application made in the prescribed form as given in Schedule-II.

Every application should be accompanied with a fee as prescribed pursuant to para 8.

The Competent Authority may grant authorization only if he is satisfied as to the technical, financial and legal competence of the applicant.

A person who has been granted an authorization shall furnish to the Competent Authority a copy of the final deed containing the arrangement entered into within a period of 30 days from the date such arrangement is entered.

Additional Information

10. Competent Authority may seek such additional information and facilitation of access to relevant facilities as he may consider necessary for processing an application for authorization, or to ensure continued compliance with the conditions on which the authorization has been issued.

Reporting requirements

11. Every person receiving any nuclear material, non-nuclear material, equipment, components, information or technology under such authorization (hereinafter referred to as the 'Recipient') shall be required to report to the Competent Authority, details of such transfers within 30 days thereof providing

details of such transfer and any activity that was carried out by such person pursuant to the agreement or the assurance.

12. Every Recipient shall be required to submit an annual report by 15th April of every year for the immediately preceding financial year providing the details of transfers of any nuclear material, non-nuclear material, equipment, information, or technology, and any activity that was carried out by such a person pursuant to the agreement or the assurance to the Competent Authority.

13. Every authorization shall be non-transferable, non-assignable and subject to such conditions and reporting requirements as may be stipulated therein or subsequently sought. The Competent Authority may suspend or revoke an authorization for breach of any of the conditions on which it is granted or for non-compliance of any reporting requirement, provided that such suspension or revocation shall be ordered only after giving the person concerned an opportunity of making a representation and considering his representation.

Recognition and verification of transfer

14. Any nuclear material, non-nuclear material, equipment, components, information or technology shall be deemed to have been transferred pursuant to an agreement for cooperation with a co-operating country or an assurance given by the Government of India to a trading country only if an authorization has been obtained by the person in India before entering into any arrangement with a Supplier, and the Competent Authority has been informed of such transfer having taken place. The Government of India reserves the right to verify any such transfer in any manner it may consider necessary.

Legal requirements

15. Arrangements pursuant to authorizations shall continue to be subject to provisions of the Atomic Energy Act, 1962, other applicable Indian laws and rules, regulations and guidelines made thereunder. These arrangements shall also

conform to the policies of the Government of India and the international treaties to which India is or may be a Party.

(A. Gitesh Sarma)
Joint Secretary to the Government of India

Schedule - I

"Nuclear material" means any "source material" or "special fissionable material" as those terms are defined in Article XX of the Statute of the International Atomic Energy Agency (IAEA);

"Non-nuclear material" means material suitable for use in a reactor to slow down high velocity neutrons and increase the likelihood of further fission and includes deuterium, heavy water and deuterium compounds in which the ratio of deuterium to hydrogen atoms exceeds 1:5000 in quantities and graphite having a purity level better than 5 parts per million boron equivalent and with a density greater than 1.50 g/cc;

"Equipment" means equipment specially designed or adapted or which is used or intended to be used for the production or utilisation of any nuclear material, non-nuclear material, or for the production or utilisation of atomic energy and includes nuclear reactors, fuel reprocessing plants, fuel fabrication plants, uranium enrichment plants, uranium & plutonium conversion facilities, heavy water production plants, and associated equipment specially designed, prepared, adapted or used or intended to be used in such plants / facilities;

"Technology" means the specific information necessary for the development, production or use of items listed in this Schedule with the exception of data in the public domain or of Basic scientific research.

"Information" means any information that is not in public domain and is transferred in any form pursuant to such an Agreement and is so designated and documented in hard copy or digital form by agreement of the Parties that it shall be subject to such Agreement, but will cease to be information whenever the Party transferring the information or any third party legitimately releases it in public domain.

Schedule - II

(Application Fee:Rs.....)

Application for authorization by a person in India to enter into an arrangement with a person in a cooperating country / a trading country as required under the GOI Resolution No. _____ dated _____

1. Details of application fee submitted:

2. Particulars of the applicant:

a). Name:

b). Address:

c). Citizenship:

d). If company, address of registered office:

e). Degree of control by any foreign person:

f). Any other information necessary to fulfill requirements of this resolution:

3. Particulars of all interested persons (if there are more than one interested persons such as subsidiaries, contractors and sub-contractors, this information must be given for each such person and may be numbered as 3.1, 3.2, 3.3,.etc. If any person acquires such interest at a future date, particulars thereof must be furnished to the Competent Authority within 30 days of acquisition of such interest):

3.1:-

a). Name:

b). Address:

c). Citizenship:

d). If company, registration number and address of registered office (attach a certified copy of the certificate of registration, memorandum & articles of association and audited balance sheet of immediately preceding financial year)::

e). Degree of control by any foreign person:

f) Any other information necessary to fulfill requirements for authorization:

3.2:-

(add extra sheet, if required)

4. Particulars of all licences/authorizations issued to the applicant under Atomic Energy Act,1962 till date (add extra sheet, if required)

5. A complete description of the proposed activity, name and location of any facility involved, name and address of the person with whom the activity is to be performed and a detailed description of the specific project to which the activity relates (draft deed of arrangement proposed to be entered must be furnished) :

6. Designation of any information considered proprietary whose public disclosure would cause substantial harm to the competitive position of the applicant;

7. An undertaking as per the format in the Annex by the Recipient on behalf of itself, its subsidiaries, contractors and sub-contractors.

Annex to application

Undertaking

The Department of Atomic Energy
Government of India
Mumbai

We, (the name of the Recipient), ---------- wish to enter into an arrangement (specify type of arrangement) ---------- with (Give details of the person with whom arrangement is envisaged), ---------- ----------, (hereinafter referred to as the Supplier), and avail of the benefits under the agreement of cooperation (Give title of the agreement of cooperation and the Country) ---------- and / or pursuant to assurances provided by the Government of India to (Give name of the country) ---------- ----------.

(Strike out whichever is not applicable)

In connection with the above we hereby declare and undertake as follows –

1. that we have read and understood the Agreement / assurances and shall abide by all its stipulations.
2. that authorization hereby applied for, if granted shall not relieve us of legal requirements as to specific approvals or licences that we may be required to obtain under various applicable statutes and rules and regulations made thereunder.
3. that we are aware that the authorization hereby applied for, if granted to us shall be non-transferable and non-assignable and we shall neither transfer nor assign the same to any person.
4. that we neither have nor shall enter into any arrangement with the Supplier which violates the conditions of the Agreement / assurances.
5. that we neither have entered nor shall enter into any arrangement which hinders or otherwise interferes with any other activities in India involving the use of nuclear material, non-nuclear material, equipment, components, information or technology produced, acquired or developed by persons in India or the Government of India independent of the Agreement.

6. that any nuclear material, non-nuclear material, equipment, information, or technology received by us from the Supplier or items derived therefrom shall be used for peaceful purposes and shall not be used for any nuclear explosive device, for research on or development of any explosive device or for any military purpose.
7. that any nuclear material, non-nuclear material or equipment received by us from the Supplier or items derived therefrom and items derived from information or technology received by us from the Supplier shall be used or supplied for use only in facilities under IAEA safeguards.
8. that we have entered into a Confidentiality Agreement with the Supplier which enjoins on us and the Supplier not to retransfer or disclose any Confidential Information received from the other Party, nor transfer any facilities, equipment or materials derived through the use of such Confidential Information, directly or indirectly, without prior written permission of the disclosing party or its respective Government to any other country, or person, except for disclosure of minimum necessary confidential information to those ministries/departments of the Government of India wherefrom statutory/regulatory approvals are required for the construction of power plants or for the manufacture of equipment or components in India.
9. that we shall ensure adequate physical protection for storage of any supplied nuclear material or any nuclear material derived from facilities under IAEA safeguards and such physical protection, at a minimum, shall provide protection comparable to the recommendations set forth in the International Atomic Energy Agency document INFCIRC/225/Rev.4 (Corrected) or any revisions of this document that has been agreed to by the Government of India. (applicable to Recipients handling nuclear material.)
10. that this undertaking shall be binding on our successors in interest, all our subsidiaries, contractors and sub-contractors and successors in interest of such subsidiaries, contractors and sub-contractors and we shall keep the Competent Authority informed about any additional such future subsidiaries, contractors and sub-contractors.

(Authorized signatory on behalf of the Recipient)

[PUBLISHED IN THE GAZETTE OF INDIA: SEPTEMBER 11, 2004]
PART-II-SECTION 3-SUB-SECTION (i)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

Mumbai, the 25th August, 2004

G.S.R. 303.--- In exercise of the powers conferred by Section 30 read with Section 3 and clause (i) and sub-clauses (c) and (d) of clause (ii) of Sub-Section (1), Sub-Section (4) of Section 14, and Sections 16, 17 and other relevant Sections of the Atomic Energy Act (33 of 1962) and all other powers enabling it in this behalf, and in supercession of Radiation Protection Rules 1971 except as respects things done or omitted to be done before such supercession, the Central Government hereby makes the following rules, namely:-

1. **Short title, extent and commencement**: - (1) These rules may be called the Atomic Energy (Radiation Protection) Rules, 2004.

(2) These rules shall apply to practices adopted and interventions applied with respect to radiation sources.

(3) They extend to the whole of India.

(4) They shall come into force from the date of their final publication in the Official Gazette.

2. **Definitions**. - (1) In these rules, unless the context otherwise requires:-

(a) "accident" means any unintended event, including operating error, equipment failure or other mishap, the consequences or potential consequences of which are not negligible from the radiation protection point of view;

(b) "Act" means the Atomic Energy Act, 1962 (33 of 1962);

(c) "activation" means production of induced radioactivity by nuclear reactions;

(d) "activity"" means the average number of spontaneous nuclear transformations taking place per unit time in a radioactive substance or material;

(e) "adequate protection" means protection against radiation so provided that the regulatory constraints notified by the competent authority are not exceeded;

(f) "appropriate" means appropriate in the opinion of the competent authority to ensure adequate protection;

(g) "competent authority" means any officer or authority referred to in Section 27 of the Act;

(h) "contamination" means the presence of a radioactive substance in or on a material or in the human body or other place in excess of quantities specified in the relevant safety codes by the competent authority;

(i) "controlled area" means any area in which specific protection measures and safety provisions are or could be required for:

(a) controlling exposures or preventing the spread of contamination during normal working conditions; and

(b) preventing or limiting the extent of potential exposures;

(j) "conveyance" means :-

(i) any vehicle for the purpose of transport by road;
(ii) any vessel, hold, or deck defined under the law being in force, for the purposes of transport by water; and
(iii) any aircraft for the purpose of transport by air;

(k) "decommissioning" means discontinuation of the use of radiation equipment or installation on a permanent basis, with or without dismantling the equipment, including removal or containment of radioactive materials;

(l) "dose" means absorbed dose, organ dose, equivalent dose, effective dose, or committed equivalent dose, or committed effective dose depending on the context;

(m) "employer" means any person who employs workers or imparts training using sources or who is self-employed as a worker, in a radiation installation;

(n) "exposure" means the act or condition of being exposed to radiation;

(o) "handle" means manufacture, possess, store, use, transfer by sale or otherwise, export, import, transport or dispose of;

(p) "intervention" means any action to reduce or avert exposure or likelihood of exposure to sources which are not part of controlled practice or which are out of control as a result of accident;

(q) "licence" means a licence issued under rule 3;

(r) "licensee" means a person to whom licence has been issued under these rules;

(s) "medical exposure" means exposure incurred by -

(i) patients as part of their own medical diagnosis or treatment;
(ii) persons, other than occupationally exposed, while knowingly and willingly helping in the support and comfort of patients; and
(iii) volunteers in biomedical research;

(t) "nuclear fuel cycle" means all operations associated with the production of nuclear energy, including mining, milling, processing of uranium or thorium; enrichment of uranium; manufacture of nuclear fuel; operation of reactors; reprocessing of nuclear fuel; decommissioning; radioactive waste management and any research or development activity related to any of the foregoing;

(u) "off-site emergency" means accident condition or emergency situation involving excessive release of radioactive materials/hazardous chemicals from the plant into public domain calling for an intervention;

(v) "person" shall include an individual or a company or association or body of individuals, whether incorporated or not; or Central Government or a State Government;

(w) "personnel monitoring" means determination or estimation of the dose received by an individual from external and/or internal radiation;

(x) "potential exposure" means exposure that is not expected to be delivered with certainty but which can result from an accident involving a source or due to an event or sequence of events of a probabilistic nature including equipment failure and operating errors;

(y) "practice" means any human activity that introduces additional sources or exposure pathways or extends exposure to additional people or modifies the network of exposure pathways from existing sources, which may increase the exposure or likelihood of exposure of people, or the number of people exposed;

(z) "quality assurance" means any planned and systematic action necessary to provide adequate confidence that a structure, system, component or procedure will perform satisfactorily, in compliance with safety standards specified by the competent authority, and includes quality control;

(za) "quality control" means the set of operations (programming, coordinating, implementing) intended to maintain or to improve quality and includes monitoring, evaluation and maintenance at required levels of performance;

(zb) "radiation installation" means any location or facility, including a mobile facility, in which a radiation generating equipment or plant or radioactive material is present and which in the opinion of the competent authority requires radiation surveillance for ensuring adequate protection against radiation;

(zc) “radiation surveillance" means measures, including measurements and reviews performed, to ensure adequate protection;

(zd) "radiation work" means work involving exposure;

(ze) "radiation worker" means any person who is occupationally exposed to radiation;

(zf) "Radiological Safety Officer” means any person who is so designated by the employer with the approval of the competent authority;

(zg) "regulatory constraint" means restriction on radiation protection parameters notified by the competent authority;

(zh) "sealed source" means radioactive material that is -

(a) (i) permanently sealed in a capsule; or
(ii) in a solid form which is closely bounded and
(b) is designed to meet the safety standards prescribed by the competent authority;

(zi) "source" means a radioactive material or a radiation generating plant or equipment;

(zj) "supervised area" means any area not already designated as a controlled area but where occupational exposure conditions are kept under review even though specific protection measures and safety provisions are not normally needed;

(zk) "unsealed source" means any radioactive material that is not a sealed source; and

(zl) "worker" means radiation worker.

(2) Words and expressions used in these rules and not defined but defined in the Act, shall have the meanings respectively assigned to them in the Act.

3. **Licence**:- (1) No person shall, without a licence -

(a) establish a radiation installation for siting, design, construction, commissioning and operation; and

(b) decommission a radiation installation.

(2) No person shall handle any radioactive material, or operate any radiation generating equipment except in accordance with the terms and conditions of a licence.

(3) A licence shall be issued for sources and practices associated with the operation of -

(i) nuclear fuel cycle facilities;
(ii) land based high intensity gamma irradiators other than gamma irradiation chambers;
(iii) particle accelerators used for research and industrial applications;
(iv) neutron generators;
(v) facilities engaged in the commercial production of radioactive material or radiation generating equipment;
(vi) telegamma and accelerators used in radiotherapy;
(vii) computed tomography (CT) unit;
(viii) interventional radiological x-ray unit;
(ix) industrial radiography; and
(x) such other source or practice as may be notified by the competent authority, from time to time.

Provided that for sources and practices associated with the operation of -

(i) brachytherapy;
(ii) deep x-ray units, superficial and contact therapy x-ray units;
(iii) gamma irradiation chambers;
(iv) nuclear medicine facilities;
(v) facilities engaged in the commercial production of nucleonic gauges and consumer products containing radioactive material; and
(vi) such other source or practice as may be notified by the competent authority, from time to time;

an authorisation shall be necessary.

Provided further that for sources and practices associated with the operation of -

(i) medical diagnostic x-ray equipment including therapy simulator;
(ii) analytical x-ray equipment used for research;
(iii) nucleonic gauges;
(iv) RIA laboratories;
(v) radioactive sources in tracer studies;
(vi) biomedical research using radioactive material; and
(vii) such other source or practice as may be notified by the competent authority, from time to time;

a registration shall be necessary.

Provided also that for -

(i) approval for siting, design, construction, commissioning and decommissioning of a radiation installation;
(ii) approval for sealed sources, radiation generating equipment and equipment containing radioactive sources, for the purposes of manufacture and supply;
(iii) approval for package design for transport of radioactive material;
(iv) approval for shipment approval for radioactive consignments; and
(v) such other source or practice as may be notified by the competent authority, from time to time;

consent shall be necessary.

(4) The licence shall not be transferable without the prior approval of the competent authority.

4. **Fees for licence**: The competent authority may prescribe by notification in the Official Gazette, appropriate fees payable for issuance of licence specified in these rules.

5. **Exemption**:- The use and disposal of an substance and materials which spontaneously emit radiation not exceeding the level of radiation prescribed by notification issued under clause (i) of Sub-Section (1) of Section 2 of the Act and the use of radiation generating equipment, devices or appliances emitting radiation not exceeding the limit determined by the Central Government under clause (g) of Section 3 of the Act, are exempted from the purview of rule 3.

6. **Exclusion**:- Exposures resulting from naturally occurring radionuclides present in the human body, cosmic radiation at the earth surface, unmodified concentrations of radionuclides in raw materials and from other sources and practices which may be prescribed as not amenable for control, are excluded from these rules.

7. **Conditions precedent to the issuance of a licence**:-(1) An application for licence shall be made by to the competent authority by an employer or a person duly authorized by him.

(2) No licence to handle radioactive material, or to operate radiation generating equipment, shall be issued to a person unless, in the opinion of the competent authority -

(a) the application for such licence is for purposes envisaged by the Act;

(b) documentation relevant to the licence and complete in all respects is submitted to the competent authority;

(c) in respect of approval for siting, design, construction, commissioning and decommissioning, of a radiation installation, the proposed equipment, facilities and handling procedures afford adequate protection during normal or intended operations;

(d) the applicant has demonstrated compliance with the provisions of the relevant safety codes and safety standards specified by the competent authority; and

(e) in respect of licence for operation of a radiation installation -

(i) all the requirements relating to safety specified by the competent authority in the relevant safety codes and safety standards have been satisfied in the construction of the radiation installation;

(ii) workers have appropriate training and instructions in radiation safety, in addition to the appropriate qualification and training required for performing their intended tasks;

(iii) a Radiological Safety Officer is designated in accordance with rule 19;

(iv) appropriate radiation monitors and dosimetry devices are available with the applicant for purposes of radiation surveillance;

(f) the equipment, facilities and handling procedures afford adequate protection during normal operations, minimize occurrence of potential exposures and enable appropriate remedial actions to be taken in the event of an accident.

(3) No type approval of sealed sources, radiation generating equipment and equipment containing a radioactive source for the purpose of manufacture and supply or package design approval for transport of radioactive material or shipment approval for radioactive consignment or any other approval as notified under third proviso to rule 3, by the competent authority may be issued unless, in the opinion

of the competent authority, the applicant has demonstrated compliance with the relevant safety codes and safety standards specified by him.

8. **Issuance of licence**:- The licence shall be issued within a period of one hundred and eighty days from the date of receipt of the application subject to the condition that all the requirements for issuance of the licence have been duly fulfilled.

9. **Period of validity of Licence**:- Every licence issued under rule 3 shall, unless otherwise specified, be valid for a period of five years from the date of issue of such licence.

10. **Suspension, modification or withdrawal of a licence**:- The competent authority may -

(i) if in its opinion, the licensee has contravened any of the provisions of these rules; or

(ii) considers it to be necessary in public interest pertaining to radiation safety;

after giving a show cause notice to the licensee and also giving him an opportunity to make a representation within a period of thirty days from the date of receipt of the notice by him against the action proposed to be taken and on consideration of his representation,

(a) suspend the operation of the licence for a specified period of time; or

(b) revoke or modify the terms and conditions of the licence.

11. **Modification of radiation installation or change in working condition**:- No modification to an existing radiation installation or no change in working conditions therein, affecting safety shall be done without the prior approval of the competent authority.

12. **Restrictions on use of sources**:- (1) The licensee shall not handle any source:-

(a) other than those specified in the licence;

(b) for any purpose other than those specified in the licence; and

(c) in any location except as specified in the licence.

(2) The licensee shall ensure that individuals other than those who may be specified in the licence do not handle the source.

13. **Restriction on certain practices**:- (1) Practices such as deliberate addition of radioactive substances in foodstuffs, beverages, toys, personal ornaments, and cosmetics or any other commodity or product intended for ingestion, inhalation or percutaneous intake by, or application to, a human being and sale, import or export of such products shall not be permitted.

(2) Activation of the aforesaid products shall not be permitted.

14. **Radiation symbol or Warning sign**:- (1) The radiation symbol or warning sign shall be conspicuously and prominently displayed at all times -

(a) on externally visible surfaces of radiation equipment, and containers for storage of radioactive materials; packages for radioactive materials and vehicles carrying such packages;

(b) at the entrance to the room housing the radiation generating equipment; and

(c) at the entrance of controlled area and supervised area.

(2) The radiation symbol shall not be used for any purpose other than those mentioned in these rules.

(3) The specification of the radiation symbol or warning sign shall be as prescribed by the competent authority, by order for that purpose.

15. **Dose limits and other regulatory constraints**:-The licensee shall ensure compliance with the dose limits and other regulatory constraints specified by the competent authority by order under these rules.

16. **Safety Standards and Safety Codes**:- The competent authority may issue safety codes and safety standards, from time to time, prescribing the requirements for radiation installation, sealed sources, radiation generating equipment and equipment containing radioactive sources, and transport of radioactive material and the licensee shall ensure compliance with the same.

17. **Prohibition of employment of persons below certain age**:- (1) No person under the age of 18 years shall be employed as a worker.

(2) No person under the age of 16 years shall be taken as trainee or employed as an apprentice for radiation work.

18. **Classified worker**:- The employer shall designate as classified workers, those of his employees, who are likely to receive an effective dose in excess of three-tenths of the average annual dose limits notified by the competent authority and shall forthwith inform those employees that they have been so designated.

19. **Radiological Safety Officer**:- Every employer shall designate, with the written approval of the competent authority, a person having appropriate qualifications as Radiological Safety Officer.

20. **Responsibilities of the employer**:- (1) Every employer shall:

(a) ensure that provisions of these rules are implemented by the licensee, Radiological Safety Officer and other worker(s),

(b) provide facilities and equipment to the licensee, Radiological Safety Officer and other worker(s) to carry out their functions effectively in conformity with the regulatory constraints,

(c) prior to employment of a worker, procure from his former employer, where applicable, the dose records and health surveillance reports,

(d) upon termination of service of worker provide to his new employer on request his dose records and health surveillance reports,

(e) furnish to each worker dose records and health surveillance reports of the worker in his employment annually, as and when requested by the worker and at the termination of his service,

(f) inform the competent authority if the licensee or the Radiological Safety Officer or any worker leaves the employment, and

(g) arrange for health surveillance of workers as specified under rule 25.

(2) The employer shall be the custodian of radiation sources in his possession and shall ensure physical security of the sources at all times.

(3) The employer shall inform the competent authority, within twenty four hours, of any accident involving a source or loss of source of which he is the custodian.

21. **Responsibilities of the licensee**:- (1) The responsibility for implementing the terms and conditions of the licence shall rest with the licensee.

(2) The licensee shall comply with the surveillance procedures, safety codes and safety standards specified by the competent authority.

(3) Every licensee shall establish written procedures and plans for controlling, monitoring and assessment of exposure for ensuring adequate protection of workers, members of the public and the environment and patients, wherever applicable.

(4) The licensee shall comply with the provision of rules for safe disposal of radioactive waste issued under the Act.

(5) Without prejudice to the generality of the above, the licensee shall

(a) not allow workers, other than those specified in sub-clause (ii) of clause (e) of sub-rule (2) of rule 7 and already dealt with under rule 17.

(b) maintain records of workers as specified under rule 24;

(c) arrange for preventive and remedial maintenance of radiation protection equipment, and monitoring instruments;

(d) in consultation with the Radiological Safety Officer, investigate any case of exposure in excess of regulatory constraints received by individual workers and maintain records of such investigations;

(e) inform competent authority promptly of the occurrence, investigation and follow-up actions in cases of exposure in excess of regulatory constraints, including steps to prevent recurrence of such incidents;

(f) carry out physical verification of radioactive material periodically and maintain inventory;

(g) inform appropriate law enforcement agency in the locality of any loss of source;

(h) inform the employer and the competent authority of any loss of source;

(i) investigate and inform the competent authority of any accident involving source and maintain record of investigations;

(j) verify the performance of radiation monitoring systems, safety interlocks, protective devices and any other safety systems in the radiation installation;

(k) in consultation with Radiological Safety Officer, prepare emergency plans, as specified in rule 33, for responding to accident to mitigate their consequences and ensure emergency preparedness measures;

(l) conduct or arrange for quality assurance tests of structures, systems, components and sources and related equipment;

(m) advise the employer about the modifications in working condition of a pregnant worker;

(n) inform the competent authority if the Radiological Safety Officer or a worker leaves the employment; and

(o) inform the competent authority when he leaves the employment.

(6) The licensee shall ensure that the workers are familiarised with contents of the relevant surveillance procedures, safety standards, safety codes, safety guides and safety manuals issued by the competent authority and emergency response plans.

22**.** **Responsibilities of the Radiological Safety Officer**:-

(1) The Radiological Safety Officer shall be responsible for advising and assisting the employer and licensee on safety aspects aimed at ensuring that the provisions of these rules are complied with.

(2) The Radiological Safety Officer shall:-

(a) carry out routine measurements and analysis on radiation and radioactivity levels in the controlled area, supervised area of the radiation installation and maintain records of the results thereof;

(b) investigate any situation that could lead to potential exposures;

(c) advise the employer regarding -

(i) the necessary steps aimed at ensuring that the regulatory constraints and the terms and conditions of the licence are adhered to;

(ii) the safe storage and movement of radioactive material within the radiation installation;

(iii) initiation of suitable remedial measures in respect of any situation that could lead to potential exposures; and

(iv) routine measurements and analysis on radiation and radioactivity levels in the off-site environment of the radiation installation and maintenance of the results thereof;

(d) ensure that -

(i) reports on all hazardous situations along with details of any immediate remedial actions taken are made available to the employer and licensee for reporting to the competent authority and a copy endorsed to the competent authority;

(ii) quality assurance tests of structures, systems, components and sources, as applicable are conducted; and

(iii) monitoring instruments are calibrated periodically.

(e) assist the employer in -

(i) instructing the workers on hazards of radiation and on suitable safety measures and work practices aimed at optimising exposures to radiation sources; and

(ii) the safe disposal of radioactive wastes; and

(iii) developing suitable emergency response plans to deal with accidents and maintaining emergency preparedness;

(f) advise the licensee on -

(i) the modifications in working condition of a pregnant worker; and

(ii) the safety and security of radioactive sources;

(g) furnish to the licensee and the competent authority the periodic reports on safety status of the radiation installation; and

(h) inform the competent authority when he leaves the employment.

23. **Responsibilities of worker**:-(1) Every worker shall observe the safety requirements and follow safety procedures and instructions and shall refrain from any wilful act that could be detrimental to self, co-workers, the radiation installation and public.

(2) The worker shall:-

(a) provide to the employer information about his previous occupations including radiation work, if any;

(b) make proper use of such protective equipment, radiation monitors and Personnel monitoring devices as provided; and

(c) inform the licensee and the Radiological Safety Officer, of any accident or potentially hazardous situation that may come to his notice;

(3) A female worker shall, on becoming aware that she is pregnant, notify the employer, licensee and Radiological Safety Officer in order that her working conditions may be modified, if necessary.

24. **Records of workers**:- (1) Every licensee shall maintain complete and up-to-date records of -

(a) personnel monitoring under Clause (b) of sub-rule (2) of rule 27, in the format as specified by order by the competent authority; and

(b) the health surveillance specified in rule 25.

(2) Such records shall be preserved during the working life of each worker, and afterwards until the worker attains or would have attained the age of Seventy five years, or not less than thirty years after the termination of the work involving occupational exposure whichever is later.

(3) A worker shall have access to his personnel monitoring and the health surveillance records.

25. **Health surveillance of workers**:- (1) Every employer shall provide the services of a physician with appropriate qualifications to undertake occupational health surveillance of classified workers.

(2) Every worker, initially on employment, and classified worker, thereafter at least once in three years as long as the individual is employed, shall be subjected to the following -

(a) general medical examination as specified by order by the competent authority; and

(b) health surveillance to decide on the fitness of each worker for the intended task;

(3) The health surveillance shall include -

(a) special tests or medical examinations as specified by order by the competent authority, for workers who have received dose in excess of regulatory constraints; and

(b) counselling of pregnant workers.

26. **Medical exposures**:- The licensee carrying out diagnostic or therapeutic work using radiation generating equipment, sealed or unsealed sources, shall for optimizing the medical exposure ensure that -

(a) performance of the equipment is verified periodically by appropriate quality assurance tests;

(b) records are maintained for a period specified by the competent authority of -

(i) radiation doses received by therapy patients;

(ii) activity administered to patients for diagnostic and therapeutic purposes; and

(iii) other relevant parameters;

(c) the exposure of humans for bio-medical research is carried out only on healthy volunteers with their prior consent in writing. The methodology, the number of volunteers and the radiation dose they are subjected to shall be reviewed by the ethical review committee constituted by the employer; and

(d) any accidental medical exposure is investigated and a written report is submitted to the competent authority.

27. **Radiation surveillance requirements**:- (1) The competent authority may by order specify appropriate radiation surveillance requirements and procedures and the employer and the licensee shall comply with them.

(2) Without prejudice to the generality of the foregoing provisions, such radiation surveillance requirements and procedures may provide that -

(a) the siting, design, construction, commissioning, operation, servicing and maintenance and decommissioning of facilities involving the use of radiation, and disposal of radioactive material shall be done in accordance with the specifications laid down by the competent authority in the relevant safety codes and safety standards;

(b) the workers shall be subjected to personnel monitoring and health surveillance and appropriate records shall be maintained;

(c) transport of radioactive material in public domain shall be in accordance with the procedures laid down by the competent authority and in accordance with the other regulations pertaining to transport by different modes; and

(d) appropriate quality assurance requirements in the above.

28. **Directives in the cases of exposures in excess of regulatory constraints**:- (1) When, in the opinion of the competent authority, any worker has exceeded the dose constraints, the competent authority may, without prejudice to other course of action available, issue appropriate directives for controlling further exposure and the employer shall comply with the directives.

(2) If a worker discontinues radiation work under the directives of the competent authority issued under this rule, the employer shall assign alternative work not

involving exposure to radiation, until the competent authority is satisfied about the fitness of the worker to resume radiation work.

(3) The employer shall comply with restrictions, if any, that the competent authority may impose in this regard.

29. **Power to appoint or recognize persons or agencies**:- The competent authority may, from time to time, appoint or recognize persons or agencies having the qualifications and expertise, prescribed in the relevant safety code, for the purpose of performing any of the functions entrusted to them by the authority and for ensuring compliance with radiological surveillance.

30**. Inspection of premises, radiation installations and conveyances**:- (1) Any person duly authorised under sub-Section (4) of Section 17 of the Act may, for the purposes of enforcement of these rules, inspect any premises, or radiation installation, or conveyance.

(2) The date and time of inspection may or may not be informed to the employer or the licensee prior to the inspection.

(3) The employer and the licensee shall extend all assistance to enable the inspection to be carried out effectively and unhindered.

(4) The findings of the inspection shall be forwarded to the licensee for necessary corrective actions.

(5) Inspection may be carried out at all licencing stages, namely, siting, construction, commissioning, operation and decommissioning.

(6) The person authorised to conduct inspection may -

(a) Inspect, from safety point of view, to ensure that the licensee has fulfilled the radiological safety requirements for carrying out the practices at the radiation installation as per the stipulations laid down in the licence. This shall include -

(i) checking, whether the safety related structures, systems, components and devices are of approved quality based, on the relevant safety codes and safety standards specified by the competent authority and that they are functioning as per the design intent, (checking that respective operating personnel are competent to operate the facility;

(ii) that the facilities are operating as per the approved technical specification; and

(iii) conducting all such examinations (including verification of relevant records) as may be considered necessary;

(b) make such tests and measurements as may be necessary for the purpose of assessing radiation safety;

(c) investigate unusual incidents or accidents, if any, that had occurred at the radiation installation and arrive at the reasons for the same and recommend corrective measures;

(d) review and verify whether the corrective actions have been implemented; and

(e) inspect radioactive consignments in any conveyance carrying radioactive material and inspect any package containing radioactive material.

31. **Power to investigate, seal or seize radiation installation or radioactive material and to give direction to the employer**:- (1) Any person duly authorised under Section 17 of the Act, may, after inspection, carry out investigation for the purposes of determining contravention of any of the provisions of these rules;

(2) The investigation may be carried out against a complaint or on suspicion or after an unusual incident or accident;

(3) The person authorised to investigate may -

(a) seal any radiation installation or any conveyance carrying radioactive materials or seize any radioactive material or contaminated equipment; and

(b) indicate in writing to the employer any recommendation aimed at ensuring adequate protection and the licensee shall comply with the same.

32. **Directives in case of accidents**:- (1) In the event of an accident involving the source or release of radioactive material, the competent authority may -

(a) Intervene and issue such directions as deemed fit and proper under the circumstances in the interest of radiation safety and the employer shall act as per the directions of the competent authority and shall make every effort to mitigate the consequences of the accident , or

(b) The competent authority may assign experts to give advice or render assistance in mitigating the consequences of the accident and the expenses incurred, if any, shall be reimbursed by the employer.

(2) In the interest of safety of the radiation installation, workers, public and the environment, the competent authority may issue such directions as it may deem fit for ensuring safety including the immediate shutting down of the radiation installation and the employer shall comply with the directions.

33. **Emergency preparedness**:- (1) The licensee shall prepare emergency response plans as specified by the competent authority in the relevant safety codes and maintain emergency preparedness.

(2) The licensee shall submit the response plans for plant emergencies and site emergencies to the competent authority for approval.

(3) The licensee shall submit the response plans for off-site emergencies prepared by the appropriate authorities to the competent authority for review.

(4) In respect of radiation installations governed by clause (a) of sub-rule (3) of rule 3 and clause (b) of sub-rule (3) of rule 3, emergency response plans shall be submitted to the competent authority prior to the commissioning of the installations.

(5) Any modification to the emergency plan shall require prior approval of or review by the competent authority.

34. **Decommissioning of radiation installation**:- (1) When a radiation installation or radiation generating equipment ceases to be in use, the employer shall ensure its decommissioning.

(2) No employer shall decommission a radiation installation without the prior approval of the competent authority.

(3) The decommissioning plan shall take due cognizance of disposal of radioactive wastes, recycling of materials, and reuse of equipment and premises.

(4) The licensee shall comply with such directive as may be issued by the competent authority to ensure adequate protection of the persons in and around the decommissioned installation.

35. **Offences and penalties**:- Any person who contravenes the provisions of these rules or any of the terms and conditions of licence issued hereunder, shall be punishable as provided for under the Act.

[F.No. AEA/30(1)/2002-ER]

V.P. RAJA. Jt. Secy.

APPENDIX 38 A

THE FOREIGN TRADE (DEVELOPMENT AND REGULATION) ACT, 1992 No.22 OF 1992

The following Act of Parliament received the assent of the President on the 7th August, 1992, andis hereby published for general information:-

THE FOREIGN TRADE (DEVELOPMENT AND REGULATION) ACT, 1992
No.22 OF 1992
(7th August, 1992)

An Act to provide for the development and regulation of foreign trade by facilitating imports into, and augmenting exports from India and for matters connected therewith or Incidental thereto.

Be it enacted by Parliament in the Forty-third Year of the Republic of India as follows:-

CHAPTER I
PRELIMINARY

Short title and commencement

1. (1) This Act may be called the Foreign Trade (Development and Regulation) Act, 1992.
   (2) Sections 11 to 14 shall come into force at once and the remaining provisions of this Act shall be deemed to have come into force on the 19th day of June 1992.

Definitions.

2. In this Act, unless the context otherwise requires:-
   (a) "Adjudicating Authority" means the authority specified in, or under, section 13;
   (b) "Appellate Authority" means the authority specified in, or under, sub-section (1) of section 15;
   (c) "conveyance" means any vehicle, vessel, aircraft or any other means of transport including any animal;
   (d) "Director General" means the Director General of Foreign Trade appointed under section 6;
   (e) "import" and "export" means respectively bringing into, or taking out of, India any goods by land. sea or air;
   (f) "Importer-exporter Code Number" means the Code Number granted under section 7;
   (g) "licence" means a licence to import or export and includes a customs clearance permit and any other permission issued or granted under this Act;
   (h) "Order" means any order made by the Central Government under section 3; and
   (i) "Prescribed" means prescribed by rules made under this Act.

CHAPTER III

IMPORTER-EXPORTER CODE NUMBER AND LICENCE

Importer-exporter Code Number.

7. No person shall make any import or export except under an Importer-exporter Code Number granted by the Director General or the officer authorised by the Director General in this behalf, in accordance with the procedure specified in this behalf by the Director General.

Suspension and cancellation of Importer-exporter Code Number.

8. (1) Where :-

(a) any person has contravened any law relating to Central excise or customs or foreign exchange or has committed any other economic offence under any other law for the time being in force as may be specified by the Central Government by notification in the Official Gazette, or

(b) the Director General has reason to believe that any person has made an export or import in a manner gravely prejudicial to the trade relations of India with any foreign country or to the interests of other persons engaged in imports or exports or has brought disrepute to the credit or the goods of the country, the Director General may call for the record or any other information from that person and may, after giving to that person a notice in writing informing him of the grounds on which it is proposed to suspend or cancel the Importer-exporter Code Number and giving him a reasonable opportunity of making a representation in writing within such reasonable time as may be specified in the notice and, if that person so desires, of being heard, suspend for a period, as may be specified in the order, or cancel the Importer-exporter Code Number granted to that person.

(2) where any Importer-exporter Code Number granted to a person has been suspended or cancelled under sub-section (1), that person shall not be entitled to import or export any goods except under a special licence, granted, in such manner and subject to such conditions as may be prescribed, by the Director General to that person.

Issue, suspension and concellation of licence.

9. (1) The Central Government may levy fees, subject to such exceptions, in respect of such person or class of persons making an application for a licence or in respect of any licence granted or renewed in such manner as may be prescribed.

(2) The Director General or an officer authorised by him may, on an application and after making such inquiry as he may think fit, grant or renew or refuse to grant or renew a licence to import or export such class or classes of goods as may be prescribed, after recording in writing his reasons for such refusal.

(3) A licence granted or renewed under this section shall -

(a) be in such form as may be prescribed;

(b) be valid for such period as may be specified therein; and

(c) be subject to such terms, conditions and restrictions as may be prescribed or as specified in the licence with reference to the terms, conditions and restrictions so prescribed.

(4) The Director General or the officer authorised under sub-section (2) may, subject to such conditions as may be prescribed for good and sufficient reasons, to be recorded in writing suspend or cancel any licence granted under this Act:

Provided that no such suspension or cancellation shall be made except after giving the holder of the licence a reasonable opportunity of being heard.

(5) An appeal against an order refusing to grant, or renew or suspending or canceling, a licence shall lie in like manner as an appeal against an order would lie under section 15.

CHAPTER IV

SEARCH, SEIZURE, PENALTY AND CONFISCATION

Power relating to search and seizure

10. (1) The Central Government may, by notification in the Official Gazette, authorise any person for the purposes of exercising such powers with respect to entering such premises and searching inspecting and seizing of such goods, documents, things and conveyances subject to such requirements and conditions, as may be prescribed.

(2) The provisions of the Code of Criminal Procedure, 1973 relating to searches and seizures shall, so far as may be, apply to every search and seizure made under this section.

Contravention of provisions of this Act, rules, orders and export and import policy.

11. (1) No export or import shall be made by any person except in accordance with the provisions of this Act, the rules and orders made thereunder and the export and import policy for the time being in force.

(2) Where any person makes or abets or attempts to make any export or import in contravention of any provision of this Act or any rules or orders made thereunder or the export and import policy, he shall be liable to a penalty not exceeding one thousand rupees or five times the value of the goods in respect of which any contravention is made or attempted to be made, whichever is more.

(3) Where any person, on a notice to him by the Adjudicating Authority, admits any contravention, the Adjudicating Authority may, in such class or classes of cases and in such manner as may be prescribed, determine, by way of settlement, an amount to be paid by that person.

(4) A penalty imposed under this Act may, if it is not paid, be recovered as an arrear of land revenue and the Importer-exporter Code Number of the person concerned, may, on failure to pay the penalty by him, be suspended by the Adjudicating Authority till the penalty is paid.

(5) Where any contravention of an provision of this Act or any rules or orders made thereunder or the export and import policy has been, is being or is attempted to be made, the goods together with any package, covering or receptacle and any conveyances shall, subject to such requirements and conditions as may be prescribed, be liable to confiscation by the Adjudicating Authority.

(6) The goods or the conveyance confiscated under sub-section (5) may be released by the Adjudicating Authority, in such manner and subject to such conditions as may be prescribed, on payment by the person concerned of the redemption charges equivalent to the market value of the goods or conveyance, as the case may be.

Penalty or confiscation not to interfere with other punishments.

12. No penalty imposed or confiscation made under this Act shall prevent the imposition of any other punishment to which the person affected thereby is liable under any other law for the time being in force.

Adjudicating Authority

13. Any penalty may be imposed or any confiscation may be adjudged under this Act by the Director General or, subject to such limits as may be specified, by such other officer as the Central Government may by notification in the Official Gazettte, authorise in this behalf.

Giving of opportunity to the owner of the goods, etc.

14. No order imposing a penalty or of adjudication of confiscation shall be made unless the owner of the goods or conveyance or other person concerned, has been given a notice in writing -

(a) informing him of the grounds on which it is proposed to impose a penalty or to confiscate such goods or conveyance; and

(b) to make a representation in writing within such reasonable time as may be specified in the notice against the imposition of penalty or confiscation mentioned therein, and, if he so desired, of being heard in the matter.

Appendix 38 D

THE FOREIGN TRADE (DEVELOPMENT AND REGULATION) AMENDMENT ACT, 2010

The following Act of Parliament received the assent of the President on 19th August, 2010, and is hereby published for general information:-

THE FOREIGN TRADE (DEVELOPMENT AND REGULATION)
AMENDMENT ACT, 2010

No.25 of 2010

[19th August, 2010]

An Act to amend the Foreign Trade(Development and Regulation)Act,1992.

Be it enacted by Parliament in the Sixty-first year of the Republic of India as follows:-

Short title and commencement.

1.(1) This Act may be called the Foreign Trade(Development and Regulation) Amendment Act,2010.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint:

Provided that different dates may be appointed for different provisions of this Act and any reference in any such provision to the commencement of this Act shall be construed as are reference to the coming into force of that provision.

Amendment of section 2

22 of 1992

2. In section 2 of the Foreign Trade (Development and Regulation Act, 1992 (herein after referred to as the principal Act), -

(a) for clause (e) following shall be substituted, namely:,

"(e) "import" and "export" means, -

(I) in relation to goods, bringing into, or taking out of, India any goods by land, sea or air;

(II) in relation to services or technology, -
supplying, services or technology-

(A) from the territory of another country into the territory of India.

(B) in the territory of another country to an Indian service consumer;

(C) by a service supplier of another country, through commercial presence in India;

(D) by a service supplier of another country, through presence of their natural persons in India;

supplying, services or technology –

(A) from India into the territory of any other country;

(B) in India to the service consumer of any other country;

(C) by a service supplier of India, through commercial

presence in the territory of any other country

(D) by a service supplier of India, through presence of Indian natural persons in the territory of any other country;

Provided that "import" and export" in relation to the goods, services and technology regarding Special Economic Zone or between two Special Economic Zones shall be governed in accordance with the provisions contained in the Special Economic Zones Act, 2005'. 28 of 2005

(b) after clause (i), the following clauses shall be inserted, namely-

"(j) "services" means service of any description which is made available to potential users and includes all the tradable services specified under the General Agreement on Trade in Services entered into amongst India and other countries who are party to the said Agreement:

Provided that, this definition shall not apply to the domain of taxation;

(k) "service supplier" means any person who supplies a service and who intends to take benefit under the foreign trade policy;

(l) "specified goods or services or technology" means the goods or services or technology, the export, import, transfer, re-transfer, transit and transshipment of which is prohibited or restricted because of imposition of conditions on the grounds of their being pertinent or relevant to India as a Nuclear Weapon State, to the national security of India, to the furtherance of its foreign policy or its international obligations under any bilateral, multilateral or international treaty, convenant, convention or arrangement relating to weapons of mass destruction or their means of delivery to which India is a party or its agreement with a foreign country under the foreign trade policy formulated and notified under section 5 of the Act;

(m) "technology" means any information (including information embodied in software), other than information in the public domain, that is capable of being used in -.

(i) the development, production or use of any goods or software;

(ii) the development of, or the carrying out of, an industrial or commercial activity or the provision of service of any kind.

Explanation – For the purpose of this clause –

when technology is described wholly or partly by reference to the uses to which it (or the goods to which it relates) may be put, it shall include services which are provided or used, or which are capable of being used in the development, production or use of

such technology or goods;
"public domain" shall have the same meaning as assigned to it in clause (i) of section 4 of the Weapons of Mass Destruction and their Delivery System (Prohibition of Unlawful Activities) Act, 2005'.

21 of 2005

Amendment Chapter II

3. In the principal Act, in sub-heading below "Chapter II" for the words "EXPORT AND IMPORT POLICY" the words "FOREIGN TRDE POLICY" shall be substituted.

Amendment of section 3

4. In section 3 of the Principal Act, -

(a) in sub-section (2), -

(i) for the words "import or export of goods" the words "import or export of goods or services or technology" shall be substituted;

(ii) after sub-section(2), the following proviso shall be inserted, namely: –

"Provided that the provisions of this sub-section shall be applicable, in case of import or export of services or technology, only when the service or technology provider is availing benefit under the foreign trade policy or is dealing with specified services or specified technologies".

(b) after sub-section (3), the following sub- section shall be inserted, namely -

"(4) without prejudice to anything contained in any other law, rule, regulation, notification or order, no permit or licence shall be necessary for import or export of any goods nor any goods shall be prohibited for import or export except, as may be required under this Act, or rules or orders made thereunder".

Substitution of new section for section 5

5. For section 5 of the principal Act, the following section shall be substituted namely: –

Foreign Trade Policy.

"5. The Central Government may, from time to time, formulate and announce by notification in the Official Gazette, the foreign trade policy and may also, in the like manner, amend that policy:

Provided that the Central Government may direct that, in respect of the Special Economic Zones, the foreign trade policy shall apply to the goods, services and technology with such exceptions, modifications and adaptations, as may be specified by it by notification in the Official Gazette ".

Amendment of section 6.

6. In section 6 of the principal Act, in sub-section (2), for the words "export and import policy" the words "foreign trade policy" shall be substituted.

Amendment of section 7.

7. In section 7 of the principal Act, the following proviso shall be inserted, namely-

"Provided that in case of import or export of services or technology the Importer-exporter Code Number shall be necessary only when the service or technology provider is taking benefit under the foreign trade policy or is dealing with specified services or specified technologies".

Amendment of section 8

8. In section 8 of the principal Act, -

(A) for sub-section (1), the following sub-section shall be substituted namely-

"(1) Where –

(a) any person has contravened any of the provisions of this Act or any rules or orders made thereunder or the foreign trade policy or any other law for the time being in force relating to Central excise or customs or foreign exchange or has committed any other economic offence under any other law for the time being in force as may be specified by the Central Government by notification in the Official Gazette, or

(b) the Director General or any other officer authorized by him has reason to believe that any person has made an export or import in a manner prejudicial to the trade relations of India with any foreign country or to the interests of other persons engaged in imports or exports or has brought disrepute to the credit or the goods of, or services or technology provided from the country, or

(c) any person who imports or exports specified goods or services or technology, in contravention of any provision of this Act or any rules or orders made thereunder or the foreign trade policy,

the Director General or any other officer authorized by him may call for the record or any other information from that person and may, after giving to that person a notice in writing informing him of the grounds on which it is proposed to suspend or cancel the Importer-exporter Code Number and after giving him a reasonable opportunity of making a representation in writing within such reasonable time as may be specified in the notice and, if that person so desires, of being heard, suspend for a period, as may be specified in the order, or cancel the Importer-exporter Code Number granted to that person";

(B) in sub-section (2), for the words "import or export any goods", the words "import or export any goods or services or technology" shall be substituted.

Amendment of section 9

9. In section 9 of the principal Act, -

(a) in sub-sections (1), (3), (4) and (5), for the word "licence", wherever it occurs, the words "licence, certificate, scrip or any instrument bestowing financial or fiscal benefits" shall be substituted;

(b) for sub-section(2), the following sub-section shall be substituted, namely -

"(2) The Director General or an officer authorized by him may, on an application and after making such inquiry as he may think fit, grant or renew or refuse to grant or renew a licence to import or export such class or classes of goods or services or technology as may be prescribed and, grant or renew or refuse to grant or renew certificate, scrip or any instrument bestowing financial or fiscal benefit after recording in writing his reasons for such refusal.".

Insertion of new Chapter IIIA

10. After Chapter III of the Principal Act, the following Chapter shall be inserted namely:-

CHAPTER IIIA

QUANTITATIVE RESTRICTIONS

Power of Central Government to impose quantitative restrictions

9 (A). (1)If the Central Government, after conducting such enquiry as it deems fit, is satisfied that any goods are imported into India in such increased quantities and under such conditions as to cause or threaten to cause serious injury to domestic industry, it may, by notification in the Official Gazette, impose such quantitative restrictions on the import of such goods as it may deem fit:

Provided that no such quantitative restrictions shall be imposed on any goods originating from a developing country so long as the share of imports of such goods from that country does not exceed three per cent, or where such goods originate from more than one developing country, then, so long as the aggregate of the imports from all such countries taken together does not exceed nine per cent, of the total imports of such goods into India.

(2) The quantitative restrictions imposed under this section shall, unless revoked earlier, cease to have effect on the expiry of four years from the date of such imposition:

Provided that if the central government is of the opinion that the domestic industry has taken measures to adjust to such injury or threat thereof and it is necessary that the quantitative restriction should continue to the imposed or prevent of such injury or threat and to facilitated the adjustments , it may extend the said period beyond four years:

Provided further that in no case the quantitative restriction shall continue to be imposed the beyond a period of ten years from the date on which such restriction were first imposed.

(3) The Central Government may, by rules provide for the manner in which goods, the import of which shall be subject to quantitative restrictions under this section, may be identified and the manner in which the causes of serous injury or causes of threat of serious injury in relation to such goods may be determined.

(4) For the purposes of this section-

(a) "developing country" means a country notified by the Central Government in the Official Gazette, in this regard;

(b) "domestic industry" means the producers of goods (including producers of agricultural goods)-

As a whole of the like goods or directly competitive goods in India; or

(ii) Whose collective output of the like goods or directly competitive goods in India constitutes a major share of the total production of the said goods in India;

(c) "serious injury" means as injury causing significant overall impairment in the position of a domestic industry;

(d) "threat of serious injury" means a clear and imminent danger of serious injury.'.

Amendment of section 10.

11. In section 10 of the principal Act, for sub-section (1), the following sub-section shall be substituted, namely-

"(1) The Central Government may, by notification in the Official Gazette, authorize any person for the purposes of exercising such powers with respect to-

(a) entering such premises where the goods are kept, stored or processed, manufactured, traded or supplied or received for the purposes of import or export and searching inspecting and seizing of such goods, documents, things and conveyances connected with such import and export of goods

(b) entering such premises from which the services or technology are being provided, supplied, received, consumed or utilized and searching, inspecting and seizing of such goods, documents, things and conveyances connected with such import and export of services and technology,

Subject to such requirements and conditions, and with approval of such officer**,** as may be prescribed:

Provided that the provisions of causes (b) shall be applicable, in case of import of export of services or technology, only when the service or technology provider is availing benefit under the foreign trade policy or is dealing with specified services or specified technologies.

Substitution of new section for section 11

12. For section 11 of the principal act, the following section shall be substituted namely-

Contravention of provisions of this

11.(1) No export or import shall be made by any person except in accordance with the provisions of this Act, the rules and orders made there under and the foreign trade policy for the time being

Act, rules, orders and foreign trade policy

in force.

(2) Where any person makes or abets or attempts to make any export or import in contravention of any provision of this Act or any rules or orders made there under or the foreign trade policy he shall be liable to a penalty of not less than ten thousand rupees and not more than five times the value of the goods or services or technology in respect of which any contravention is made or attempted to be made, whichever is more.

(3) Where any person signs or uses, or causes to be made, signed or used, any declaration, statement or document submitted to the Director General or any officer authorised by him under this Act, knowing or having reason to believe that such declaration, statement or document is forged or tempered with or false in any material particular, he shall be liable to a penalty of not less than ten thousand rupees or more than five times the value of the foods or services or technology in respect of which such declaration, statement or document had been submitted, whichever is more.

(4) Where any person, on a notice to him by the adjudicating Authority, admits any contravention, the Adjudicating Authority may, in such class or classes or cases and in such manner as may be prescribed, determine, by way of settlement, an amount to be paid by the person.

(5) A penalty imposed under this Act may, if it is not paid, by any person, be recovered by any one or more of the following modes, namely:-

(a) the Director General may deduct or require any officer subordinate to him to deduct the amount payable under this Act from any money owing to such person which may be under the control of such officer; or

(b) the Director General may require any officer of customs to deduct the amount payable under this Act from any money owing to such person which may be under the control of such officer of customs, as if the said amount is payable under the Customs Act, 1962; or 52 of 1992.

(c) the Director General may require the Assistant Commissioner of Customs or Deputy Commissioner of Customs or any other officer of Customs to recover the amount so payable by detaining or selling any goods (including the goods connected with services or technology) belonging to such person which are under the control of the Assistant Commissioner of Customs or Deputy Commissioner or Customs or any other officer of Customs, as if the said amount is payable under the Customs Act, 1962; or 52 of 1992.

(d) if the amount cannot be recovered from such

person in the manner provided in clauses (a), (b) and (c),-

(i) the Director General or any officer authorized by him may prepare a certificate signed by him specifying the amount due from such person and send it to the Collector of the District in which such person owns any property or resides or carries on business and the said Collector on receipt of such certificate shall proceed to recover from such person the amount specified thereunder as if it were an arrear of land revenue; or

(ii) the Director General or any officer authorised by him (including an officer of Customs who shall then exercise his powers under the Customs Act, 1962) and in accordance with the rules made in this behalf, detain any movable or immovable property belonging to or under the control of such person, and detain the same until the amount payable is paid, as if the said amount is payable under the Customs Act, 1962; and in case, any part of the said amount payable or of the cost of the distress or keeping of the property, remains unpaid for a period of thirty days next after any such distress, may cause the said property to be sold and with the proceeds of such sale, may satisfy the amount payable and costs including cost of sale remaining unpaid and shall render the surplus, if any to such person. 52 of 1992.

(6) where the terms of any bond or other instrument executed under this Act or any rules made thereunder provide that any amount due under such instrument may be recovered in the manner laid down in sub-section (5), the amount may, without prejudice to any other mode of recovery, be recovered in accordance with the provisions of that sub section.

(7) without prejudice to the provisos contained in this section, the Importer Exporter Code Number of any person who fails to pay any penalty imposed under this Act, may be suspended by the Adjudicating Authority till the penalty is paid or recovered, as the case may be.

(8) Where any contravention of any provision of this Act or any rules or orders made thereunder or the foreign trade policy has been, is being, or is attempted to be made, the goods (including the goods connected with services or technology) together with any package, covering or receptacle and any conveyances shall, subject to such conditions and requirement as may be prescribed, be liable to confiscation by Adjudicating Authority.

(9) The goods (including the goods connected with services or technology) or the conveyances confiscated under sub-section (8) may be released by the Adjudicating Authority, in such manner and subject to such conditions as may be prescribed, on payment by the person concerned of the redemption charges equivalent to the market value of the goods, or conveyance, as the case may be."

Insertion of new

13. After section 11 of the principal Act, the following sections shall be inserted, namely:- — sections 11A and 11B.

Crediting sums realized by way of penalties in consolidated Fund of India.

11A. All sums realized by way of penalties under this Act shall be credited to the Consolidated Fund of India.

Empowering Settlement Commission for regularistion of export obligation default.

11B. Settlement of customs duty and interest thereon as ordered by the Settlement Commission as constituted under section 32 of the Central Excise Act, 1944, shall be deemed to be a settlement under this Act."

1 of 1994

Amendment of section 14.

14. In section 14 of the principal Act, for the word "goods" at both the places where it occurs, the words and brackets "goods (including the goods connected with services or technology)" shall be substituted.

Insertion of a new Chapter IVA.

15. After Chapter IV of the principal Act, following Chapter shall be inserted, namely:-

CHAPTER IVA

CONTROLS ON EXPORT OF SPECIFIED GOODS, SERVICES AND TECHNOLOGY

Controls on export of specified goods, services and technology.

14A.(1) In regard to controls on export of specified goods, services and technology referred to in this chapter, the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005 shall apply to exports, transfers, re-transfers, brought in transit, trans-shipment of, and brokering in specified goods, technology or services.

21 of 2005

21 of 2005.

(2) All terms, exemptions or provisions of the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005 shall apply to the specified goods, services or technology with such exceptions, modifications and adaptations as may be specified by the Central Government by notification in the Official Gazette,

(3) The Central Government may, by notification in the Official Gazette, direct that any of the provisions of the Chapter-

Shall not apply to any goods, services or technologies, or
Shall apply to any goods, services or technologies with such exceptions, modifications and adaptations as may be specified in the notification.

Transfer controls.

14B.(1) The Central Government may, by notification in the Official Gazette, make rules in conformity with the provisions of the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005 for, or, in connection

21 of 2005.

with, the imposition of controls in relation to transfer of specified goods, services or technology.

(2) No goods, services or technology notified under this Chapter shall be exported, transferred, re-transferred, brought in transit or transshipped except in accordance with the provisions of this Act, the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005 or any other relevant Act. 21 of 2005.

Catch-all controls.

14C. No person shall export any material, equipment or technology knowing that such material, equipment or technology is intended to be used in the design or manufacture of a biological weapon, chemical weapon, nuclear weapon or other nuclear explosive device, or in their missile delivery systems.

Suspension or cancellation of a licence

14D. The Director General or an officer authorized by him may, by order suspend or cancel a licence to import of export or specified goods or services or technology without giving the holder of the license a reasonable opportunity of being heard but such person shall be given a reasonable opportunity of being heard within six months of such order and thereupon the Director General or the Officer so authorized may, if necessary, by order in writing, confirm, modify or revoke such order.

14E. (1) In case of a contravention relating to specified goods, services or technologies, the penalty shall be accordance with the provisions of the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005. 21 of 2005.

(2) Where any person contravenes or attempts to contravene or abets, any of the provision(s) of this Chapter in relation to import or export of any specified goods or services or technology, he shall, without prejudice to any penalty which may be imposed on him, be punishable with imprisonment for a term stipulated in the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005. 21 of 2005.

(3) No court shall take cognizance of any offence punishable under this Chapter without the previous sanction of the Central Government or any officer authorized in this behalf by the Central Government by general or special order".

Amendment of title of Chapter V

16. In the principal Act, in sub-heading below "CHAPTER V", for the word "REVISION", the word "REVIEW" shall be substituted.

Amendment of section 15

17. In section 15 of the principal Act, in sub-section (2), in the proviso, for the word "goods", the words and brackets "the goods (including the goods connected with services or technology)" shall be substituted.

18. For section 16 of the principal Act, the following shall be substituted, namely- Substitution of new section for section 16.

16. “The Central Government in the case of any decision or order made by the Director General, or the Director General in the case of any decision or order made by any officer subordinate to him, may on its or his own motion or otherwise, call for and examine the records of any proceeding, for the purpose of satisfying itself or himself, as the case may be, as to the correctness, legality or propriety of such decision or order and make such orders thereon as may be deemed fit: Review.

Provided that no decision or order shall be varied under this section so as to prejudicially affect any person unless such person-

(a) has, within a period of two years from the date of such decision or order, received a notice to show cause why such decision or order shall not be varied, and

(b) has been given a reasonable opportunity of making representation and, if he so desires, of being heard in his defence”.

19. In section 17 of the principal Act, for the word “Revision” wherever it occurs, the word “Review” shall be substituted. Amendment of section 17.

20. After section 18 of the principal Act, the following shall be inserted, namely:- Insertion of new section 18A.

“18.A The provision of this Act shall be in addition to, and not in derogation of, the provisions of any other law for the time being in force”. Application of other laws not barred.

21. In section 19 of the principal Act, in sub-section (2), - Amendment of section 19.

(a) in clause (b), for the word “licence”, the words “licence, certificate, scrip or any instrument bestowing financial or fiscal benefits” shall be substituted;

(b) for clause (c), the following clause shall be substituted, namely:-

“(c) the class or classes of goods (including the goods connected with service or technology) for which a licence, certificate, scrip or any instrument bestowing financial or fiscal benefits may be granted under sub-section (2) of section 9.”.

(c) in clauses (d) and (e), for the word “licence”, the words “licence, certificate, scrip or any instrument bestowing financial or fiscal benefits” shall be substituted;

(d) after clause (e), the following clause shall be inserted namely:-

“(ea) the matter in which the matter in which goods the import of which shall be subject to quantitative restrictions, may

be identified and the manner in which the causes of serious injury or causes of threat of serious injury in relation to such goods may be determined under sub-section (3) of section 9A;".

(e) in clause (f), for the word "goods", the words and brackets "goods (including the goods connected with the service or technology)" shall be substituted;

(f) in clause (g), for the words, brackets and figures "sub-section (3) of section 11", the words, brackets and figures"sub-section (4) of the section 11" shall be substituted;

(g) for clause (h), the following clause shall be substituted namely:-

"(h) the requirement and conditions subject to which goods including the goods connected with service or technology and conveyances shall be liable to confiscation under sub-section (8) of section 11;".

(h) for clause (i), the following clause shall be substituted, namely:-

"(i) the manner in which and the conditions subject to which goods including the goods connected with service or technology and conveyances may be released on payment of redemption charges under sub-section (9) of section 11;".

V.K.Bhasin
Secretary to the Govt of India.

सत्यमेव जयते

FOREIGN TRADE POLICY

[1st April, 2015 – 31st March, 2020]

Government of India
Ministry of Commerce and Industry
Department of Commerce

(h) Prevention of traffic in arms, ammunition and implements of war.

2.08 Export/Import of Restricted goods/Services

Any goods /service, the export or import of which is 'Restricted' may be exported or imported only in accordance with an Authorisation / Permission or in accordance with the procedure prescribed in a Notification / Public Notice issued in this regard.

2.09 Export of SCOMET Items

Export of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET), as indicated in Appendix-3 of Schedule 2 of ITC(HS) Classification of Export & Import Items, shall be governed by the specific provisions of (i) Chapter IV A of the FT(D&R) Act, 1992 as amended from time to time (ii) Sl. No. 4 & 5 of Table A and Appendix-3 of Schedule 2 of ITC(HS) Classification of Export & Import Items (iii) Para 2.16, Para 2.17, Para 2.18 of FTP and (iv) Para 2.73-2.82 of Hand Book of Procedures, in addition to the other provisions of FTP and Handbook of Procedures governing export authorizations.

2.10 Actual User Condition

Goods which are importable freely without any 'Restriction' may be imported by any person. However, if such imports require an Authorisation, actual user alone may import such good(s) unless actual user condition is specifically dispensed with by DGFT.

(e) A firm's name can be removed from DEL, by the concerned RA for reasons to be recorded in writing, if the firm completes Export Obligation/ pays penalty/ fulfills requirement of Demand Notice(s) issued by the RA/submits documents required by the RA.

Prohibitions (Country and Product Specific):

2.16 Prohibition on Import and Export of 'Arms and related material' from / to Iraq

Notwithstanding the policy on Arms and related materials in Chapter 93 of ITC(HS), the import/export of Arms and related material from/to Iraq is 'Prohibited'. However, export of Arms and related material to Government of Iraq shall be permitted subject to 'No Objection Certificate' from the Department of Defence Production.

2.17 Prohibition on Direct or Indirect Import and Export from / to Democratic People's Republic of Korea

Direct or indirect export and import of following items, whether or not originating in Democratic People's Republic of Korea (DPRK), to / from, DPRK is 'Prohibited':

All items, materials, equipment, goods and technology including as set out in lists in documents INFCIRC/254/Rev.11/Part 1 and INFCIRC/254/ Rev.8/Part 2 (IAEA documents), S/2012/947, S/2009/364 and S/2006/853 (UN Security Council documents) and Annex III to UN Security Council resolution 2094 (2013) which could contribute to DPRK's nuclear-related, ballistic missile-related or other weapons of mass destruction-related programmes; Luxury goods, including but not limited to the items specified in Annex IV to UN Security Council resolution 2094 (2013).

2.18 Prohibition on Direct or Indirect Import and Export from/ to Iran

(a) Direct or indirect export and import of all items, materials, equipment, goods and technology which could contribute to Iran's enrichment-related, reprocessing or heavy water related activities, or to development of nuclear weapon delivery systems, as mentioned below, whether or not originating in Iran, to/from Iran is 'Prohibited':

(i) Items listed in INFCIRC/254/Rev.9/Part 1 and INFCIRC/254/Rev.7/Part 2 (IAEA Documents).

(ii) Items listed in S/2006/263 (UN Security Council document).

(b) All the UN Security Council Resolutions/Documents and IAEA Documents referred to above are available on the UN Security Council website (www.un.org/Docs/sc) and IAEA website (www.iaea.org).

2.19 Prohibition on Import of Charcoal from Somalia

Direct or indirect import of charcoal is prohibited from Somalia, irrespective of whether or not such charcoal has originated in Somalia [United Nations Security Council Resolution 2036 (2012)]. Importers of charcoal shall submit a declaration to Customs that the consignment has not originated in Somalia.

HANDBOOK OF PROCEDURES

[1st April, 2015 – 31st March, 2020]

Government of India
Ministry of Commerce and Industry
Department of Commerce

2.73 Application for SCOMET Authorisation

(a) An application for grant of Export Authorisation in respect of SCOMET items mentioned in Appendix 3 to Schedule 2 of ITC (HS) Classifications of Export and Import Items may be made in **ANF 2 O** to DGFT (Hqrs) along with documents prescribed therein.

(b) However, such applications are mandatorily to be filed through online system under the Icon E-COM on the website of DGFT. The Uniform Resource Locator [URL] for online application is http://dgft.gov.in/CallModule.asp?sch =SCOMET. While submitting the online application, all the required documents including End User Certificates (EUCs) are to be uploaded as PDF files. Manual submission of application is dispensed with except the original End User Certificate(s) in **Appendix 2 S** from all entities in the chain of supply viz. the foreign buyer, end user and intermediary/consignee (if they are different from the foreign buyer & end user), which is/are to be submitted in hard copy to SCOMET Section of DGFT (HQ), besides electronic submission.

2.74 Inter Ministerial Working Group

An Inter-Ministerial Working Group (IMWG) in DGFT (Hqrs.) shall consider applications for export of SCOMET items as specified in Appendix-3 to Schedule 2 of ITC (HS) Classifications of Export and Import Items based on following guidelines:

I. Applications for Authorisation to export items or technology on SCOMET List are considered on the basis of following general criteria:

(a) Credential of end-user, credibility of declaration of end-use of the item or technology, integrity of chain of transmission of item from supplier to end-user, and on potential of the item or technology, including timing of its export, to contribute to end-uses that are not in conformity with India's national security or foreign policy goals and objectives, goals and objectives of global non-proliferation, or

India's obligations under International treaties/Agreements to which it is a State party.

(b) Assessed risk that exported items will fall into hands of terrorists, terrorist groups, and non-State actors;

(c) Export control measures instituted by the recipient State;

(d) Capabilities and objectives of programmes of the recipient State relating to weapons and their delivery;

(e) Assessment of end-use(s) of item(s);

(f) Applicability of provisions of relevant bilateral or multilateral agreements, to which India is a party, to the case under consideration.

II. Application shall be accompanied by an end user certificate as per **Appendix 2S, c**ertifying that:

(a) The item will be used only for stated purpose and that such use will not be changed, nor items modified or replicated without consent of Government of India;

(b) Neither the items nor replicas nor derivatives thereof will be re-transferred without consent of Government of India;

(c) End-user shall facilitate such verifications as are required by Government of India.

III. The end-user certificate will indicate the name of the item to be exported, the name of the importer, the specific end-use of the subject goods and details of Purchase Order/Contract.

IV. Government of India may also require additional formal assurances, as deemed appropriate, including those on end-use and non-retransfer, from the State of the recipient.

V. Licensing authority for items in Category 0 in Appendix 3 to Schedule 2 of ITC (HS) is Department of Atomic Energy. Applicable guidelines are notified by the Department of Atomic Energy under Atomic Energy Act,1962. For certain items in Category 0, formal

assurances from the recipient State will include non-use in any nuclear explosive device. Authorisations for export of certain items in Category 0 will not be granted unless transfer is additionally under adequate physical protection and is covered by appropriate International Atomic Energy Agency (IAEA) safeguards, or any other mutually agreed controls on transferred items.

VI. Additional end-use conditions may be stipulated in Authorisations for export of items or technology that bear possibility of diversion to or use in development or manufacture of, or use as, systems capable of delivery of weapons of mass destruction.

VII. Authorisations for export of items in SCOMET List (other than those under Category 0, 1 and 2) solely for purposes of display or exhibition shall not require any end-use or end-user certification. However, no export Authorisation for display or exhibition shall be issued for 'Technology' in any category

2.75 Applicability of WMD Act

Export of items not on SCOMET List may also be regulated under provisions of the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.

Note 1: Export or attempt to export in violation of any of conditions of Authorisation shall invite civil and/or criminal prosecution.

Note 2: Authorisations for export of items in SCOMET List for display or exhibition abroad are subject to a condition of re-import within a period not exceeding six months. Exporters are entitled to apply for an export authorisation for such items exhibited abroad. If exhibitor intends to offer that item for sale during exhibition abroad, such sale shall not take place without a valid Authorisation.

Note 3: Export of items in Category 2 of SCOMET list may also be controlled by other applicable guidelines issued from time-to time.

Note 4: Exporters are entitled to request that only such conditions need be imposed as are subject of government-to-government instruments of accord over export of items on SCOMET List.

Note 5: 'Technology' (see also entry 'Technology' in glossary in Appendix-3 to Schedule 2 of ITC (HS) Classifications of Export and Import Items): Approval of export of an item on the SCOMET List also authorizes the export to same end-user of minimum 'technology' required for installation, operation, maintenance and repair of the item.

2.76 Supply of SCOMET Items from DTA to SEZ

No export authorisation is required for supply of SCOMET items from DTA to SEZ. However, all supplies of SCOMET items from DTA to SEZ will be reported to the Development Commissioner of the respective SEZ by the supplier in the prescribed proforma [Annexure 1 to Appendix-3 to Schedule 2 of ITC (HS) Classifications of Export and Import Items] within one week of the supplies getting effected. An annual report of such supplies from DTA to SEZ shall be sent to SCOMET Section, DGFT (Hqrs), Department of Commerce, Udyog Bhawan, Maulana Azad Road, New Delhi-110011, by the Development Commissioner (DC), SEZ in the prescribed proforma [Annexure 2 to Appendix-3 to Schedule 2 of ITC (HS) Classifications of Export and Import Items]. Report by the DC, SEZ is to be filed by 15th May of every financial year for the supplies effected during the preceding financial year. Export Authorisation is, however, required if the SCOMET items are to be physically exported outside the country from SEZ i.e. to another country (Refer Rule 26 of the SEZ Rules, 2006).

2.77 Outreach Programmes on SCOMET Export Control System

DGFT in association with Administrative Ministries/ Departments and Trade Associations will organize Industry Outreach Programme on regular basis for an effective awareness among the exporters/ importers dealing with trade, in particular, in SCOMET items.

2.78 Procedure/ Guidelines for filing / Evaluation of Applications for Entering into an Arrangement or Understanding for Site Visits, On-site Verification and Access to Records / Documentation

An application for entering into an arrangement or understanding involving site visit, on-site verification or access to records/documentation by a foreign government or a foreign third party either acting directly or through an Indian party as mentioned in Appendix 3 of Schedule 2 of ITC (HS) Classifications of Export and Import Items shall be made in **ANF 2 P** to DGFT (Hqrs.), New Delhi along with documents prescribed therein. These applications shall be considered by an Inter-Ministerial Working Group (IMWG) in DGFT (Hqrs.) based on following guidelines/general criteria:

I. Following factors, among others, will be taken into account in the evaluation of applications for entering into an arrangement or understanding for site visits, on-site verification and access to records/ documentation:

(a) Purpose for which arrangement / understanding is proposed under which site visit or on-site verification or access to records/documentation is to be undertaken.

(b) Credentials and details of the parties involved.

(c) Credentials of end-user, credibility of declarations of end-use of the items or technology, the integrity of chain of transmission of the item from the supplier to the end-user, and on the potential of the item or technology, including the timing of its export, to contribute to end-uses that are not in conformity with India's national security or foreign policy goals and objectives, the objectives of global non-proliferation, or its obligations under treaties to which it is a State party.

(d) The assessed risk that the arrangement / understanding could lead to dual-use items and technology falling into the hands of terrorists, terrorist groups and non-State actors.

(e) In case site visit, on-site verification or access to records/ documentation is to be carried out by a foreign government

or its representative(s), the following shall be taken into consideration :-

(i) Export control measures instituted by the foreign government;

(ii) Capabilities and objectives of programs of the foreign government relating to weapons and their delivery.

(f) Applicability of relevant bilateral and multilateral agreements to which India is a party.

(g) Assessment of any threat that such site visit, on-site verification or access to records/ documentation may pose to India's national security, and relations with any other country.

(h) Assessment of possible links of the foreign parties with terrorist organizations and non-state actors within their own country or in any other country.

II. Permission for arrangement or understanding involving site visit, on-site verification or access to records / documentation will be subject to the following conditions:

(a) Site visit, on-site verification or access to records /documentation will be confined to the purpose, sites and activity for which permission given/which have been mentioned in the authorisation.

(b) Site visit, on-site verification or access to records/ documentation will be allowed only to individuals mentioned in the authorisation.

(c) Site visit, on-site verification or access to records/ documentation shall be concluded during the period mentioned in the authorisation.

(d) Exporter/Importer will keep a record of site visit, on site verification or access to records/documentation alongwith detail of individuals who visited the premises during this visit

and produce the same as and when required to do so by the Government of India.

(e) No exchange of goods, services and technologies and any documentation including drawings, specification sheets etc. will take place during the visit.

(f) Exporter/importer may be required to give any additional assurance that the Government of India may require.

(g) Any other condition that may be stipulated in the permission.

III. Provisions of Weapons of Mass Destruction Act, 2005 shall also apply to an arrangement or understanding that involves site visit, on-site verification or access to records/ documentation.

IV. Any violation of any condition of the license shall invite civil/ criminal prosecution as per law.

2.79 Issue of authorisation for repeat orders

Applications for grant of authorisations for repeat orders for export of SCOMET items shall be considered by IMWG on automatic basis, subject to the following conditions:

(i) (a) the product along with the technical specification (b) the exporter (c) the foreign buyer (d) the consignee or the intermediaries, if any (e) the end user (f) the end use and (g) the country of destination; shall be same.

(ii) The permitted quantity against repeat export authorisations shall not be more than 2 times of the quantity in original authorisation, subject to the annual manufacturing capacity of the end user in respect of the relevant product , as certified by the end user.

(iii) Only the applications submitted within two years from the date of approval by IMWG of the original SCOMET authorisation will be eligible for repeat authorisation.

(iv) There shall be a cap of two repeat authorisations against the original authorisation.

(v) A declaration by the authorised signatory on the qualifying conditions as per (i) to (iv) above shall be submitted along with the application for consideration under the repeat order route.

2.80 Revalidation of SCOMET authorisation

Export license for SCOMET items may be revalidated by RA concerned only on approval of DGFT for six months at a time and maximum upto 12 months from date of expiry of validity.

2.81 Export of Military Stores

Export of Military Stores will be permitted against No Objection Certificate (NOC) from Department of Defence Production. The grant of NOC will be governed by the Standard Operating Procedure (SOP) issued for the purpose by Department of Defence Production.

2.82 Time-line for comments/NOC

The members of IMWG will endeavour to furnish their written comments/views/No Objection to DGFT within 45 days from the date of forwarding of applications by DGFT (Hqrs.). If no comments/views/No Objection is received within the stipulated period, the cases will be placed before IMWG for taking a decision, as deemed appropriate.

Export through State Trading Enterprises (STE):

2.83 Export of Items under (STE)

An application under **ANF 2N** for export of items mentioned in ITC (HS), 2012 under STE regime may be made to DGFT as per paragraph 2.20 of FTP.

(APPENDICES AND AAYAT NIRYAT FORMS)

OF

FTP 2015-2020

1ST April, 2015 – 31ST March, 2020

Government of India

Ministry of Commerce and Industry

Department of Commerce

DIRECTORATE GENERAL OF FOREIGN TRADE

Website:http://dgft.gov.in

ANF- 2 O

APPLICATION FORM FOR EXPORT OF SCOMET ITEMS LISTED IN APPENDIX 3 TO SCHEDULE 2 OF ITC (HS) CLASSIFICATION OF EXPORT AND IMPORT ITEMS

[Please see guidelines at the end before filling the application]

1.Applicant Details:				
i IEC				
ii. Name				
iii. Address	Flat/Plot/Block No.			
	Street/Area/Locality			
	City			
	State		PIN Code	
iv.TeleNo.		Country Code	Area Code	Tel.No.
	(1)			
	(2)			
v. Fax No.		Country Code	Area Code	Fax No.
vi. E-mail address where authorisation to be sent		E-mail (1)		E-mail (2)

2. Details of SCOMET items in Appendix 3 to Schedule 2 of ITC (HS) Classifications of Export & Import Items applied for export: (If required, attach extra sheet (A4 size) in the same format)								
Sl. No.	**SCOMET Category i.e. 1B, 1C, 2, 3, 4, 5 and 7**	**SCOMET Item No**	**Description of export item/s including technical specification**	**ITC (HS) Code No. (if available)**	**Quantity**	**Total FOB Value**		
						In relevant Foreign Currency	**In Rupees**	**In US$**

3. Details of exports of SCOMET items in the preceding 3 licensing years. (Details of the export last made, if no export was made during the preceding licencing year): (If required, attach extra sheet (A4 size) in the same format)

Sl. No.	Export Licence No. & Date and Issuing Regional Authority	Details of items exported		Qty exported	Country to which exported	DGFT's (HQ's) File Number
		Category	Description			

4.Shipment Details:	
i. Port of Loading/Shipment	
ii. Port of Discharge	
iii. Country to which item to be exported	
iv. Ultimate Destination Country	

5. Purpose of Export (please tick and give clarification if any):	
i. Trade	
ii. Sample	
iii. Display/Exhibition	

6A.Foreign Buyer Details:				
i. Name				
ii. Address	Flat/Plot /Block No.			
	Street/Area/Locality			
	City			
	Country		Postal Code	
iii. Telephone No.		Country Code	Area Code	Tel.No.
	(1)			
	(2)			
iv. Fax No.		Country Code	Area Code	Fax No.
v. E-mail				

vi. Export Order No. and date	

6B.Consignee Details: (If same as Foreign Buyer write "SAME As in 6A")															
i. Name															
ii. Address	Flat/Plot/Block No.														
	Street/Area/Locality														
	City														
	Country		Postal Code												
iii. Telephone No.		Country Code			Area Code				Tel.No.						
	(1)														
	(2)														
iv. Fax No.		Country Code			Area Code				Fax No.						
v. E-mail															

6C.End User Details: (If same as Foreign Buyer and/or Consignee write "SAME As in 6A and/or 6B" as the case may be)															
i. Name															
ii. Address	Flat/Plot /Block No.														
	Street/Area/Locality														
	City														
	Country		Postal Code												
Iii Tele No.		Country Code			Area Code				Tel.No.						
	(1)														
	(2)														
iv. Fax No.		Country Code			Area Code				Fax No.						
v. E-mail															

vi. End product for which the item of export will be used by the end user	
vii. Purpose for which the end product will be utilized	
viii. Is end user an entity of Government of destination country?	
ix. Manufacturing/Business/other activity of the end user	

7.Details of Banks through which financial transactions relating to this export will be executed:			
a. In Destination Country			
i. Name of the Bank			
ii. Address of the Bank	Flat/Plot /Block No.		
	Street/Area/Locality		
	City		
	Country		Postal Code
iii. SWIFT Code:			
iv. I BANK			
b. In India			
i. Name of the Bank			
ii. Address of the Bank	Flat/Plot /Block No.		
	Street/Area/Locality		
	City		
	State		PIN Code
iii. IFSC Code			

8.If applied for export on repeat basis in the same licensing year for same product , same end use and to the same end user, please furnish:	
i. Reference Number and date vide which earlier permission was granted	

ii. Export Licence number and date	
iii. Quantity allowed for export	
iv. Quantity exported on the date of this application	

9. Details of Producer/Manufacturer of the item to be exported:									
i. Name									
ii. Address	Flat/Plot /Block No.								
	Street/Area/Locality								
	City								
	State		PIN Code						

10. Period during which the item is proposed to be exported from India	

For Use in DGFT office only (To be filled by the applicant). **11A. Application Submission Details (if submitted electronically):**	
i. ECOM Reference Number	
ii. Date of Submission on Server	
iii. Submitted to which Regional Authority	
iv. File Number & Date of Issue	
v. Application Fee submission details viz. Amount in Rupees, Demand Draft No./Electronic Fund Transfer No. and Date and the name & branch of the bank on which drawn	
11B. Jurisdictional Regional Authority:	

DECLARATION/UNDERTAKING

1. I / We hereby certify that:

(i) I/We hereby declare that the particulars and the statements made in this application are true and correct to the best of my / our knowledge and belief and nothing has been concealed or held there from.

(ii) I/We fully understand that any information furnished in the application if found incorrect or false will render me / us liable for any penal action or other consequences as may be prescribed in law or otherwise warranted.

(iii) I/We undertake to abide by the provisions of the FT (D & R) Act, 1992, as amended, the Rules and Orders framed there under, FTP, HBP, Appendices and Aayat Niryat Forms and ITC (HS).

(iv) I/We hereby certify that:

D. the entity for whom the application has been made have not been penalized under any of the following Acts (as amended from time to time):
   (i) The Customs Act, 1962,
   (ii) The Central Excise Act 1944,
   (iii) Foreign Trade (Development & Regulation) Act 1992, as amended, and
   (iv) The Foreign Exchange Management Act,1999;
   (v) The Conservation of Foreign Exchange, Prevention of Smuggling Activities Act, 1974
   (vi) Weapons of Mass Destruction & their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005

E. none of the Directors / Partners / Proprietor / Karta / Trustees of the company /firm /HUF/Trust, (as the case may be), is/are a Director(s) / Partner(s) / Proprietor / Karta / Trustee in any other Company/ firm / entity which is on the Denied Entity List (DEL) of DGFT or is in the caution list of RBI*;*

F. neither the Registered Office of the company / Head Office of the firm / nor any of its Branch Office(s)/ Unit(s)/ Division(s) has been declared a defaulter and has otherwise been made ineligible for undertaking import / export under any of the provisions of the Policy;

D. we have neither obtained nor applied for issuance of an Importer Exporter Code Number in the name of our Registered / Head Office to any other Licensing Authority.

(v) I / We hereby declare that I / We have neither obtained nor applied for such benefits (including issuance of an Importer Exporter Code Number) in the name of our Registered / Head Office or any of our Branch(s) / Unit(s) / Division(s) to any other Regional Authority.

(vi) we have complied with the conditions of all previous licences / authorisations issued to us for export of SCOMET items and wherever required have duly intimated the o/o DGFT, New Delhi along with documentary evidence regarding receipt of the items of export by the end-user within the stipulated time.

(vii) I / We undertake to abide by the provisions of the FT (D & R) Act, 1992, as amended, the Rules and Orders framed there under, FTP, HBP and ITC (HS) and submit all requisite documents to the o/o DGFT (SCOMET Section), failing which I/We shall be liable to action under FT (D & R) Act, 1992 as amended or rules and orders made there under, and the Customs Act, 1962.

(viii) I hereby certify that I am authorised to verify and sign this declaration as per Paragraph 9.6 of the Policy.

Signature of the Applicant				
Name				
Designation				
Official Address	Flat/Plot/Block No.			
	Street/Area/Locality			
	City			
	State		PIN Code	
Telephone		Country Code	Area Code	Tel.No.
Place:				
Date:				

GUIDELINES FOR APPLICANTS
(Please also see paragraph 2.73 of HBP)

1. IEC must not be in DEL.

2. One original application in the prescribed format ANF 2O and ANF 1 and six copies thereof along with self-certified copies of the documents as in Para 3 below must be submitted to DGFT (HQ), Udyog Bhavan, New Delhi. Each page of the original application has to be signed by the applicant with stamp of the company.

3. Application must be accompanied by self-certified copies of the following documents:
   - (i) **Purchase Order** from the Foreign Buyer, Consignee and End –User in respect of items mentioned in Col.2 of ANF2O
   - (ii) **End User Certificate(s)** (Also see Para 4 below).
   - (iii) **Technical Specifications** (not exceeding one page for each item) for the items to be exported.

   - (iv**)** **(a)Bills of Entry(BEs)** into the destination country for items exported during the last one year as per information in column No. 3 of the application. In Col. 3 details of exports are to be given for last 3 years. However, BEs for the last 1 year only are to be submitted.
     (b) BEs as above are to be submitted with the 1st application of the financial year only. From the 2nd application onwards, the exporter shall make a reference in the forwarding letter that the

BEs have been submitted with the 1st application giving DGFT's File No. of 1st application. Copy of the forwarding letter of 1st application to be attached with every subsequent application.

(v) If a third party or contractor is involved, details of Contract or Agreement between the Foreign Buyer and End User with third party must be submitted, along with copy of contract or agreement.

4. **End User Certificate :-** Original End User certificate (in the prescribed format **Appendix 2 R** on Letter Head of all entities in the chain of supply viz. the foreign buyer, the end user and intermediaries/consignee (if they are different from the foreign buyer and end user) indicating complete details of the export product, end product, end purpose for which the item of export will be used by end user and complete address and telephone No. of end user must be furnished along with original application. End User Certificate from the following must also be submitted:

(i) The Foreign Buyer, if different from the End User.
(ii) The Consignee, if different from the Foreign Buyer & End User.
(iii) Other intermediary/ies, if any.
(iv) End User Certificates from Foreign Buyer, Consignee and End User must reflect the logical flow of items.
(v) Each EUC must mention details of items (including technical specifications) as in Col. 2 of the application (ANF 2O), duly matching with the same as in Purchase Order.
(vi) 1(one) original End Use-cum-End User Certificate covering the entire item(s) applied for, only from each of the entities in supply chain i.e., Foreign Buyer, Consignee/intermediary(ies) and End User is to be filed.

5. Details of the item(s) given in ANF 2O, End User Certificate(s) and Purchase Order(s) must match completely.

6. While filling ANF 2O, care should be taken to ensure the following:-
(i) Category of the items proposed to be exported as per Appendix 3 of ITC (HS) Classifications of Export and Import Items should be clearly mentioned.
(ii) Port of discharge and route must be clearly defined. Route/mode of transport cannot be changed after export licence has been issued.
(iii) Against column 6A, 6B & 6C, complete address should be given. P.O. Box No. will not be accepted.
(iv) All columns must be filled correctly and completely.

****

ANF- 2P

APPLICATION FORM FOR REQUEST FOR ENTERING INTO AN ARRANGEMENT OR UNDERSTANDING THAT INVOLVES SITE VISIT, ON-SITE VERIFICATION OR ACCESS TO RECORDS / DOCUMENTATION AS MENTIONED IN APPENDIX 3 TO SCHEDULE 2 OF ITC (HS) CLASSIFICATION OF EXPORT AND IMPORT ITEMS

[Please see guidelines (at the end) before filling the application]

1. IEC Number*

*IEC should not be under DEL on the date of application.

2. Applicant Details:
i. Name
ii. Address

3. Applicant Fee Details:
i. Amount in Rupees
ii. Demand Draft/Bank Receipt/Electronic Fund Transfer Number
iii. Date of issue/Transfer
iv. Name of Bank on which drawn
v. Bank Branch on which drawn

4.Jurisdictional Regional Authority:

5. Detail of activities and operations:

6. Details of the provisions of the arrangement or understanding involving site visits / on-site verification / access to records / documentation (e*.g. nature of documentation, mode of verification, nature and frequency of site visits etc.)* Please include all details and attach the draft of relevant declaration / arrangement / MOU etc. *

* Enclose additional sheet if required

7. Purpose of arrangement/understanding involving site-visit / on-site verification / access to record / documentation (please tick and give clarification, if any):	
i. Export of SCOMET Items	
ii. Import of SCOMET Items	

8. In case purpose is export / import of SCOMET Items, following details may be provided :					
(a). Details of SCOMET items in Appendix 3 of Schedule 2 of ITC(HS) Classification of Export & Import Items:					
Sl. No.	Description of export / import items including technical specification	SCOMET Category i.e. 1B, 1C, 2,3,4,5 and 7	SCOMET Item No.	ITC (HS) Code No. (if available)	Quantity
(b) End user Details :					

i. Name
ii. Address
iii. Telephone No. iv. Fax No.
v. Location (Country) of end user
vi. End product for which the item of export will be used by the end user
vii. Purpose for which the end product will be utilized
viii. Is end user an entity of Government of destination country?
ix. Manufacturing / Business / other activity of the end user

9. **Details of export / import of SCOMET items in the preceding 3 licensing years**:										
Sl. No.	Export / Import Licence/Authorization Details				Category & Description of items Exported / Imported	Qty. exported / imported	Date of Shipment	FOB Value of Exports / Imports (US $)	Country to/ from which exported / imported	Name of the End User
	No.	Date	Qty	Value (US $)						

10. Details of the Foreign Government / Foreign Third Party**
i. Name
ii. Address
iii. Telephone No. iv. Fax No.
v. Is the party, an entity of Govt. of that country?

** Detailed profile to be enclosed.

11. If the visit / verification / access to records will be through an Indian Party, details of the Indian Party :
i. Name
ii. Address
iii. Telephone No. iv. Fax No.
v. Address of Corporate Office.

12. (a) Period of arrangement or understanding that involves site visit, on-site verification or access to records / documentation:
(b). Proposed number of visits (indicate the number date/period of such visit):

13. Detail of sites and activities which will be covered by the arrangement / understanding #
(I)
i. Address
ii. Telephone No. iii. Fax No.
iv. Nature of Unit: Corporate Office / Registered Office / Branch Office /Manufacturing unit / Laboratory.
(v) Activity.

(II)	
i. Address	
ii. Telephone No.	iii. Fax No.
iv. Nature of Unit: Corporate Office / Registered Office / Branch Office /Manufacturing unit / Laboratory.	
v. Activity.	

Enclose additional sheet, if required.

14. Details of persons / individuals who shall visit during site visit / on-site verification etc. ##	
(I)	
i. Name	
ii. Address	
iii. Nationality	
iv. Position / Designation in the foreign government / foreign third party / Indian Party	
v. Telephone No.	vi. Fax No.
(II)	
i. Name	
ii. Address	
iii. Nationality	
iv. Position / Designation in the foreign government / foreign third party / Indian Party	
v. Telephone No.	vi. Fax No.

Enclose additional sheet, if required.

15.If applied for permission for entering into arrangement / understanding that involves site visit, on-site verification or access to records / documentation on repeat basis during last five (5) licensing years for the same purpose, please furnish:
Reference Number and date vide which earlier permission granted

16.Foreign Collaborator Details (As registered with GOI/RBI) (If No foreign collaboration exists, please state 'None')
i. Name
ii. Address

DECLARATION/UNDERTAKING

1 .	I/We hereby certify that : A. the entity for whom the application has been made have not been penalized under any of the following Acts (as amended from time to time): a. The Customs Act, 1962, b. The Central Excise Act 1944, c. Foreign Trade (Development & Regulation) Act 1992, and d. The Foreign Exchange Management Act,1999; e. The Conservation of Foreign Exchange, Prevention of Smuggling Activities Act, 1974 f. Weapons of Mass Destruction & their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005 *B.* none of the Directors / Partners / Proprietor / Karta / Trustees of the company /firm /HUF/Trust, (as the case may be), is/are a Director(s) / Partner(s) / Proprietor / Karta / Trustee in any other Company/ firm / entity which is on the Denied Entity List (DEL) of DGFT or in the caution list of RBI*;* C. neither the Registered Office of the company / Head Office of the firm / nor any of its Branch Office(s)/ Unit(s)/ Division(s) has been declared a defaulter and has otherwise been made ineligible for undertaking import / export under any of the provisions of the Policy; D. we have not obtained nor applied for issuance of an Importer Exporter Code Number in the name of our Registered / Head Office to any other Licensing Authority
2	I/We undertake to abide by the provisions of the Foreign Trade (Development and Regulation) Act, 1992, as amended, the Rules and Orders framed there under, the Foreign Trade Policy, the Handbook of Procedures and the ITC (HS) Classification of Export & Import Items.
3.	I/We fully understand that if any information furnished in the application is found incorrect or false will render me/us liable for any penal action or other consequences as may be prescribed in law or otherwise warranted.
4.	I/We hereby declare that the particulars and the statements made in this application are true and correct to the best of my/our knowledge and belief and nothing has been concealed or withheld therefrom.
5.	I / We hereby declare that I / We have not obtained nor applied for such benefits (including issuance of an Importer Exporter Code Number) in the name of our Registered / Head Office or any of our Branch(s) / Unit(s) / Division(s) to any other RegionalAuthority.
6.	I / We solemnly declare that I / We have applied for / obtained a RCMC to the EPC which pertains to our main line of business. In case we have applied to any other council, the application has been made within the purview of the provisions of Para 2.94 of the HBP .
7.	(i) I/We further undertake to maintain record of the site visit, on-site verification or access to records/documentation and produce the same as and when asked to do so by the Government of India. (ii) I/We also hereby inform that we have complied with the conditions of all previous permissions issued to us for entering into an arrangement or understanding that involves site visit, on-site verification or access to records/documentation.
8	I hereby certify that I am authorized to verify and sign this declaration as per Paragraph 9.6 of the Foreign Trade Policy.

Place:	Signature of the Applicant	
	Name	
	Designation	
Date:	Official Address	
	Telephone	
	E-mail Address	

GUIDELINES FOR APPLICANTS

(Please also see paragraph 2.78of HBP)

1. One original application in the prescribed format ANF 2P and ANF 1 and six copies thereof along with self-certified copies of the documents as in para 2 below must be submitted to DGFT (HQ), SCOMET Section, Udyog Bhavan, New Delhi. Each page of the original application has to be signed by the applicant with stamp of the company.

2. Application must be accompanied by self-certified copies of the documents as per details given below:
   (i) Copy of draft Declaration / draft Agreement / draft MOU proposed to be signed for entering into an Arrangement or Understanding that involves site visit etc.
   (ii) Technical Specifications (not exceeding one page for each item) for the items to be exported / imported.
   (iii) Profile of the foreign government / foreign third party / Indian party.

3. In case purpose of site visit / on-site verification is export / import, Original End User certificate (in the prescribed format Appendix 2R on Letter Head of the End User) indicating complete details of the export / import product, end product, end purpose for which the item of export / import will be used by end user alongwith complete address and telephone No. of end user must be furnished alongwith original application. End User Certificate from the following must also be submitted:

   (i) By the final end user if the import is by a third party / contractor.
   (ii) By the third party /contractor, if any, who is supplying goods to the end user.

4. Complete address(s) should be stated in relevant columns. P.O. Box number will not be accepted.

APPENDIX- 2 S

END USE CUM END USER CERTIFICATE IN CASE OF EXPORT OF SCOMET ITEMS

[TO BE SUBMITTED BY ALL ENTITIES IN THE CHAIN OF SUPPLY VIZ. THE FOREIGN BUYER, THE END USER & INTERMEDIARIES/CONSIGNEE (IF THEY ARE DIFFERENT FROM THE FOREIGN BUYER AND END USER). THIS CERTIFICATE SHALL BE ISSUED ON THE LETTERHEADS OF RESPECTIVE ENTITY]

I /We (name)_____(name & address of the foreign buyer/end user/intermediary(ies)/consignee(s) certify that we are importing (name of the SCOMET item)_____ from (name and address of the exporter)_____/ through_____(name & address of the intermediary/consignee) against Purchase Order No/Contract No._____ dated_____ as capital equipment/ component / raw material / other use (specify)_____ for the manufacture of (end product)_____which will be used for (state specific use)*_____.

(* if more than one use then enclose self certified list)

I/we further certify that the items detailed in the referenced purchase order shall not be used for any purpose other than the purpose (s) stated above and that such use shall not be changed nor the items modified or replicated without the prior consent of the Government of India. And further, if required, post installation verification shall be allowed.

The end-user shall not himself, or through another, cause the items, or replicas, or derivatives thereof to be re-transferred / sold without the consent of the Government of India, to any party within (name of the country)_____ or outside it.

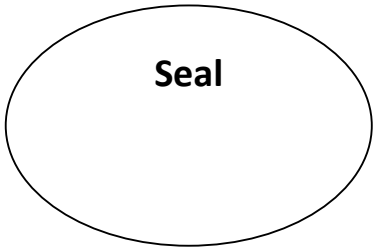
I/We also certify that the above items imported by us shall not be used for any purpose that relate to the development of Weapons of Mass Destruction.

I/we also certify that all the facts contained in this certificate are true and correct to the best of my knowledge and belief and that I/we do not know of any additional facts that are inconsistent with this certificate.

Place:

Signature of end-user / authorised signatory
of the end-user with stamp and seal

Date:



Name:_____

Designation:_____

Address :_____

Tel. (STD Code)-_____

E-mail:_____

(Annexure to Notification No. 37(RE-2012)/2009-2014 Dated 14.03.2013)

Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) export of which is regulated

Export of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) listed below shall be permitted only against an export licence issued in this behalf unless export is prohibited or is permitted without licence subject to fulfillment of conditions, if any, as indicated under/against any specific category or item.

Provisions of Chapter IV A of the FT(D&R) Act,1992 as amended in 2010 shall apply to the goods, services and technologies specified in the list below.

Supply of SCOMET Items from DTA to SEZ

No export permission is required for supply of SCOMET items from DTA to SEZ. However, all supplies of SCOMET items from DTA to SEZ will be reported to the Development Commissioner of the respective SEZ by the supplier in the prescribed proforma (Annexure 1) within one (1) week of the supplies getting effected. An annual report of such supplies from DTA to SEZ shall be sent to SCOMET Cell, DGFT (Hqrs), Department of Commerce, Udyog Bhawan, Maulana Azad Road, New Delhi-110011, by the Development Commissioner (DC), SEZ in the prescribed proforma (Annexure 2) . Report by the DC, SEZ to be filed by 15th May of every financial year for the supplies effected during the preceding financial year.

Export of SCOMET Items from SEZ to outside the country

Export permission is required if the SCOMET items are to be physically exported outside the country from SEZ i.e. to another country (Refer Rule 26 of the SEZ Rules, 2006).

It is mandatory for all companies and their subsidiaries registered in India and all other business entities operating in India and involved in the manufacture, processing and use of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) listed below to obtain permission of the Central Government before entering into any arrangement or understanding that involves an obligation to facilitate or undertake site visits, on-site verification or access to records/ documentation, by foreign Governments or foreign third parties, either acting directly or through an Indian party or parties. Requests for such permissions shall be considered in the manner in which requests for export/import licence are considered.

Provided that where obligations involving site visits, on-site verification or access to records/ documentation by foreign governments or foreign third parties are to be undertaken pursuant to a bilateral agreement or a multilateral treaty to which India is a party, the provisions of the relevant agreement or treaty shall apply.

Exporters are advised to refer to the relevant guidelines relating to the export of SCOMET items in the Handbook of Procedures (Vol.I), as issued from time to time.

Glossary: Expressions used in the SCOMET List have the following meanings:

"Accuracy" usually measured in terms of inaccuracy, means the maximum deviation, positive or negative, of an indicated value from an accepted standard or true value.

"Active flight control systems" are systems that function to prevent undesirable "aircraft" and missile motions or structural loads by autonomously processing outputs from multiple sensors and then providing necessary preventive commands to effect automatic control.

"Aircraft": A fixed wing, swivel wing, rotary wing (helicopter), tilt rotor or tilt-wing airborne vehicle.

"Angular position deviation" means the maximum difference between angular position and the actual, very accurately measured angular position after the work piece mount of the table has been turned out of its initial position.

"Composite" means a "matrix" and an additional phase or additional phases consisting of particles, whiskers, fibres or any combination thereof, present for a specific purpose or purposes.

"Composite theoretical performance" ("CTP") is a measure of computational performance given in millions of theoretical operations per second (Mtops), calculated using the aggregation of computing elements (CE).

"Contouring control" means two or more "numerically controlled" motions operating in accordance with instructions that specify the next required position and the required feed rates to that position. These feed rates are varied in relation to each other so that a desired contour is generated.

"CTP" is equivalent to "composite theoretical performance

"Designed or modified" describes equipment, parts or components which, as a result of "development," or modification, have become endowed with specified properties that make them fit for a particular application.

"Development": Activity related to all phases prior to "production" such as design, design research, design analysis, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design, layouts.

"Digital computer" means equipment which can, in the form of one or more discrete variables, perform all of the following:

a. Accept data;
b. Store data or instructions in fixed or alterable (writable) storage devices;
c. Process data by means of a stored sequence of instructions which is modifiable; and
d. Provide output of data.

N.B.: Modifications of a stored sequence of instructions include replacement of fixed storage devices, but not a physical change in wiring or interconnections.

"Explosives": Solid, liquid or gaseous substances or mixtures of substances which, in their application as primary, booster, or main charges in warheads, demolition and other applications, are required to detonate.

"Fibrous or filamentary materials" include:
a. Continuous "monofilaments";
b. Continuous "yarns" and "rovings";
c. "Tapes", fabrics, random mats and braids;
d. Chopped fibres, staple fibres and coherent fibre blankets;
e. Whiskers, either monocrystalline or polycrystalline, of any length;
f. Aromatic polyamide pulp.

"Hybrid computer" means equipment which can perform all of the following:
a. Accept data;
b. Process data, in both analogue and digital representations; and
c. Provide output of data.

"Image enhancement" means the processing of externally derived information-bearing images by algorithms such as time compression, filtering, extraction, selection, correlation, convolution or transformations between domains (e.g., fast Fourier transform or Walsh transform). This does not include algorithms using only linear or rotational transformation of a single image, such as translation, feature extraction, registration or false coloration.

"Information security" is all the means and functions ensuring the accessibility, confidentiality or integrity of information or communications, excluding the means and functions intended to safeguard against malfunctions. This includes cryptography, 'cryptanalysis', protection against compromising emanations and computer security.
N.B.: 'Cryptanalysis': analysis of a cryptographic system or its inputs and outputs to derive confidential variables or sensitive data, including clear text.

"Insulation" is applied to the components of a rocket motor, i.e. the case, nozzle, inlets, case closures, and includes cured or semi-cured compounded rubber sheet stock containing an insulating or refractory material. It may also be incorporated as stress relief boots or flaps.

"Interior lining" is suited for the bond interface between the solid propellant and the case or insulating liner. Usually a liquid polymer based dispersion of refractory or insulating materials, e.g. carbon filled hydroxyl terminated polybutadiene (HTPB) or other polymer with added curing agents sprayed or screeded over a case interior.

"Isolated live cultures" includes live cultures in dormant form and in dried preparations.

"Isostatic presses" mean equipment capable of pressurising a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal pressure in all directions within the cavity upon a workpiece or material.

"Laser": An assembly of components which produce both spatially and temporally coherent light that is amplified by stimulated emission of radiation.

"Linearity" (usually measured in terms of non-linearity) means the maximum deviation of the actual characteristic (average of upscale and downscale readings), positive or negative, from a straight line so positioned as to equalise and minimise the maximum deviations.

"Matrix" means a substantially continuous phase that fills the space between particles, whiskers or fibres.

"Measurement uncertainty" is the characteristic parameter which specifies in what range around the output value the correct value of the measurable variable lies with a confidence level of 95 %. It includes the uncorrected systematic deviations, the uncorrected backlash and the random deviations.

"Microcircuit": A device in which a number of passive and/or active elements are considered as indivisibly associated on or within a continuous structure to perform the function of a circuit.

"Microprogrammes": A sequence of elementary instructions maintained in a special storage, the execution of which is initiated by the introduction of its reference instruction register.

"Missiles" means complete rocket systems and unmanned aerial vehicle systems.

"Modified" in the context of "software" describes "software" which has been intentionally changed such that it has properties that make it fit for specified purposes or applications. Its properties may also make it suitable for purposes or applications other than those for which it was "modified."

"Monofilament" or filament is the smallest increment of fibre, usually several micrometres in diameter.

"Monolithic integrated circuit" means a combination of passive or active 'circuit elements' or both which:

a. Are formed by means of diffusion processes, implantation processes or deposition processes in or on a single semiconducting piece of material, a so-called 'chip';
b. Can be considered as indivisibly associated; and
c. Perform the function(s) of a circuit.

N.B.: 'Circuit element' is a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

"Neural computer" means a computational device designed or modified to mimic the behaviour of a neuron or a collection of neurons, i.e., a computational device which is distinguished by its hardware capability to modulate the weights and numbers of the interconnections of a multiplicity of computational components based on previous data.

"Numerical control" means the automatic control of a process performed by a device that makes use of numeric data usually introduced as the operation is in progress.

"Optical integrated circuit" means a "monolithic integrated circuit" or a hybrid integrated circuit, containing one or more parts designed to function as a photo sensor or photo emitter or to perform (an) optical or (an) electro-optical function(s).

"Precursors": Speciality chemicals used in the manufacture of explosives.

"Pressure transducers" are devices that convert pressure measurements into an electrical signal.

"Production" means all production stages (e.g., product engineering, manufacture, integration, assembly (mounting), inspection, testing, quality assurance);

"Production equipment": Tooling, templates, jigs, mandrels, moulds, dies, fixtures, alignment mechanisms, test equipment, other machinery and components therefor, limited to those specially designed or modified for "development" or for one or more phases of "production".

"Production facilities": Equipment and specially designed "software" therefor integrated into installations for "development" or for one or more phases of "production".

"Programmes": A sequence of instructions to carry out a process in, or convertible into, a form executable by an electronic computer.

"Propellants": Substances or mixtures that react chemically to produce large volumes of hot gases at controlled rates to perform mechanical work.

"Public domain" means a domain that has no restrictions upon dissemination of information within or from it; the existence of any legal rights to the intellectual property in that information does not remove the information from being in "public domain".

"Radiation hardened": Means that the component or equipment is designed or rated to withstand radiation levels which meet or exceed a total radiation dose of 5×10^3 Gy or 5×10^5 rads (Si).

"Required": As applied to "technology", refers to only that portion of "technology" which is peculiarly responsible for achieving or exceeding the controlled performance levels, characteristics or functions. Such "required" "technology" may be shared by different products.

"Resolution" means the least increment of a measuring device; or on digital instruments, the least significant bit.

"Roving" is a bundle (typically 12-120) of approximately parallel 'strands'.
N.B.: 'Strand' is a bundle of "monofilaments" (typically over 200) arranged approximately parallel.

"Settling time" means the time required for the output to come within one-half bit of the final value when switching between any two levels of the converter.

"Signal processing" means the processing of externally derived information-bearing signals by algorithms such as time compression, filtering, extraction, selection, correlation, convolution or transformations between domains (e.g., fast Fourier transform or Walsh transform).

"Software": A collection of one or more "programmes", or "micro-programmes", fixed in any tangible medium of expression. However, unless otherwise provided for against any item on the SCOMET List, the List does not control "software" which is either in the public domain or is generally available to the public by being :

a. Sold from stock at retail selling points without restriction, by means of:
    1. Over-the-counter transactions;
    2. Mail order transactions; or
    3. Telephone call transactions; and
b. Designed for installation by the user without further substantial support by the supplier.

"Space qualified": Products designed, manufactured and tested to meet the special electrical, mechanical or environmental requirements for use in the launch and deployment of satellites or high altitude flight systems operating at altitudes of 100 km or higher.

"Stability" means the standard deviation (1 sigma) of the variation of a particular parameter from its calibrated value measured under stable temperature conditions. This can be expressed as a function of time.

"Specially designed" qualifies the description of equipment, parts, components or "software" which, as a result of "development", have unique properties that distinguish them for certain predetermined purposes. For example, a piece of equipment that is "specially designed" will only be considered so if it has no other function or use. Thus a piece of manufacturing equipment that is "specially designed" to produce a certain type of component will only be considered such if it is not capable of producing other types of components.

"Tape" is a material constructed of interlaced or unidirectional "monofilaments", 'strands', "rovings", "tows", or "yarns", etc., usually preimpregnated with resin.
N.B.: 'Strand' is a bundle of "monofilaments" (typically over 200) arranged approximately parallel.

"Technology" means, except as otherwise provided for against any item in the SCOMET List, information (including information embodied in "software") other than information in the "public domain", that is capable of being used in:

a. the development, production or use of any goods or software;
b. the development of, or the carrying out of, an industrial or commercial activity or the provision of a service of any kind.

Explanation: When technology is described wholly or partly by reference to the uses to which it (or the goods to which it relates) may be put, it shall include services which are provided or used, or which are capable of being used, in the development, production or use of such technology or goods.

"Tow" is a bundle of "monofilaments", usually approximately parallel.

"Toxins" means toxins in the form of deliberately isolated preparations or mixtures, no matter how produced, other than toxins present as contaminants of other materials such as pathological specimens, crops, foodstuffs or seed stocks of "microorganisms".

"Unmanned Aerial Vehicle" ("UAV") means any aircraft capable of initiating flight and sustaining controlled flight and navigation without any human presence on board.

"Usable in," "usable for," "usable as" or "capable of" qualifies the description of equipment, parts, components, materials, technology or "software" which are suitable for a particular purpose. There is no requirement that the equipment, parts, components, technology or "software" should have been configured, modified or specified for that particular purpose. (Contrast with "specially designed" – see above).

"Use" includes operation; installation (including on site installation); maintenance; repair; overhaul; refurbishing.

"Vaccine" is a medicinal product in a pharmaceutical formulation licensed by, or having marketing or clinical trial authorisation from, the regulatory authorities of either the country of manufacture or of use, which is intended to stimulate a protective immunological response in humans or animals in order to prevent disease in those to whom or to which it is administered.

"Yarn" is a bundle of twisted 'strands'.

N.B.: 'Strand' is a bundle of "monofilaments" (typically over 200) arranged approximately parallel.

Items on the SCOMET List are organized in the following categories.

Category 0	Nuclear materials, nuclear-related other materials, equipment and technology
0A	Prescribed Substances
0A1	Source Material
0A2	Special Fissionable Material
0A3	Other Materials
0B	Prescribed Equipment
0C	Technology
Category 1	Toxic chemical agents and other chemicals
1A	Prohibited chemicals
1B	Chemicals permitted only to States party to the Chemical Weapons Convention
1C	Chemicals permitted also to States not party to the Chemical Weapons Convention
Category 2	Micro-organisms, toxins
2A	Bacteria
2B	Fungi
2C	Parasites
2D	Viruses
2E	Rickettsials
2F	Toxins
2G	Plant pathogens
2H	Genetically Modified Organisms
Category 3	Materials, Materials Processing Equipment and related technologies
3A	Materials
3A1	Special materials
3A2	Structural materials
3A3	Rocket propellants and constituent chemicals
3A4	High explosives
3A5	Stealth materials
3B	Materials processing and production equipment, related technology and specially designed components and accessories therefor.
3C	[Reserved]
3D	Chemical and biomaterial manufacturing and handling equipment and facilities
Category 4	Nuclear-related other equipment and technology, not controlled under Category 0
4A	Equipment, assemblies, components including test and production equipment
4B	Equipment, assemblies, components including test and measurement equipment usable in development of nuclear explosive devices
4C	Technology

Category 5 Aerospace systems, equipment, including production and test equipment, related technology and specially designed components and accessories therefor.

5A Rocket systems
5A1 Systems
5A2 Production and test equipment
5A3 Technology
5B Unmanned aerial vehicles
5C Avionics and navigation systems
5D Manned-aircraft, aero-engines, related equipment and components
5E Micro-light aircraft and powered 'hang-gliders'

Category 6 [Reserved]

Category 7 Electronics, computers, and information technology including information security

7A Electronics
7B Electronic test equipment
7C Computers
7D Information technology including information security
7E [Reserved]

Category 0 Nuclear materials, nuclear-related other materials, equipment and technology

Note: Export of these items is regulated under the Atomic Energy Act, 1962 and rules framed, and notifications/orders issued thereunder from time-to-time by the Department of Atomic Energy. The licensing authority for items in this category is the Department of Atomic Energy. An application for licences to export prescribed equipment or/an prescribed substances shall be made in writing to the Joint Secretary, Department of Atomic Energy, Anushakti Bhavan, CSM Marg, Mumbai 400 001.

0A Prescribed Substances

Note: Any radioactive material in Category 0A shall additionally attract the provisions of Radiation Protection Rules, 2004 made under the Atomic Energy Act, 1962 and the provisions of Section-16 of the Atomic Energy Act, 1962.

0A1 Source Material

0A101 Uranium containing the mixture of isotopes occurring in nature.

0A102 Uranium depleted in the isotope 235.

0A103 Thorium.

0A104 Any of the foregoing in the form of metal, alloy, chemical compound, or concentrate or any substance.

0A105 Any other material containing one or more of the foregoing.

Prescribed quantitative limits: as given below and in any period of 12 months:

a. Uranium (containing the mixture of isotopes in nature) exceeding 100 kilograms.
b. Depleted uranium (uranium depleted in the isotope 235 below that occurring in nature) exceeding 1000 kilograms.
c. Thorium exceeding 1000 kilograms.

0A2 Special Fissionable Material

0A201 Plutonium-239.

0A202 Uranium-233.

0A203 Uranium enriched in the isotopes 235 or 233.

0A204 Neptunium.

0A205 Any material containing one or more of the foregoing.

0A206 Such other fissionable material determined by the Central Government from time to time, but the term "special fissionable material" does not include source material.
Note: Any quantity of special fissionable material is prescribed substance.

0A3 Other Materials

'Other Materials' means non-nuclear materials for reactors, nuclear related dual-use materials indicated below and such materials as determined by the Central Government from time to time.

0A301 Deuterium, heavy water (deuterium oxide) and any other deuterium compound, in which the ratio of deuterium to hydrogen atoms exceeds 1:5000, in quantities exceeding 5 kilograms of deuterium in one consignment or 25 kilograms of deuterium in any period of 12 months.

0A302 Nuclear grade graphite / carbon, having a purity level better than 5 parts per million (ppm) boron equivalent and with a density greater than 1.5 gram/cc in quantities exceeding 30 metric tons in any period of 12 months.

0A303 Zirconium with hafnium content of less than 1 part to 500 parts of zirconium by weight (i.e. less than 2000 ppm) in the form of metal, its alloys, compounds, manufactures thereof, waste or scrap of any of the foregoing.

0A304 Beryllium, its compounds, alloys and its minerals / concentrates including Beryl but excluding:
a. beryllium windows used for x-ray machines and gamma ray detectors and
b. beryl in the form of emeralds or aquamarines.

0A305 Lithium enriched in the Lithium-6 (6Li) isotope to greater than its natural isotopic abundance (i.e. more than 7.5%) and the products or devices containing enriched lithium such as elemental lithium, alloys, compounds, mixtures containing lithium, manufactures thereof, waste or scrap of any of the foregoing.

0A306 Niobium and Tantalum, their metals, alloys and minerals including columbite and tantalite.

0A307 Titanium alloys having both of the following characteristics:

a. 'Capable of' an ultimate tensile strength of 900 MPa or more at 293 K (20 degrees C); and
b. In the form of tubes or cylindrical solid forms (including forgings) with an outside diameter of more than 75 mm.

Technical note: The phrase 'capable of' encompasses titanium alloys before or after heat treatment.

0A308 Tritium, tritium compounds or mixtures containing tritium in which the ratio of tritium to hydrogen atoms exceeds 1 part in 1000, except when utilized in such quantities and for such purposes as for organic labelled compounds, Gas Filled Light Sources and as Tritiated Water for radiotracer studies.

0A309 Hafnium: (CAS 7440-58-6)

Hafnium metal, alloys containing more than 60% hafnium by weight, hafnium compounds containing more than 60% hafnium by weight, manufactures thereof, and waste or scrap of any of the foregoing.

0A310 Radium-226:

Radium-226 (226Ra), radium-226 alloys, radium-226 compounds, mixtures containing radium-226, manufactures thereof, and products or devices containing any of the foregoing, except medical applicators and a product or device containing less than 0.37 GBq (10mCi) of Ra-226 in any form.

0A311 Boron (CAS 7740-42-8)

Boron enriched in the Boron-10 (10B) isotope to greater than its natural isotopic abundance as follows:
Elemental boron, compounds, mixtures containing boron, manufactures thereof, waste or scrap of any of the foregoing.

0A312 Helium-3

Helium-3 (3He), mixtures containing helium-3, and products or devices containing any of the foregoing.

Note: A product or device containing less than 1gm of Helium-3 is excluded.

0A313 Alpha–emitting radionuclides:

Alpha–emitting radionuclides having an alpha half-life of 10 days or greater but less than 200 years, in the following forms:

a. Elemental;
b. Compounds having a total alpha activity of 37 GBq per kg or greater;
c. Mixtures having a total alpha activity of 37 GBq per kg or greater;
d. Products or devices containing any of the foregoing.

Alpha emitters controlled by this item include:

Actinium-225	Actinium-227	Americium-242m
Californium-248	Californium-250	Californium-252
Californium-253	Californium-254	Curium-240
Curium-241	Curium-242	Curium-243
Curium244	Einsteinium-252	Einsteinium-253
Einsteinium254	Einsteinium-255	Fermium-257
Gadolinium-148	Mendelevium-258	Neptunium-235
Plutonium-236	Plutonium-237	Plutonium-238
Plutonium-241	Polonium-209	Polonium-210
Polonium-208	Radium-223	Thorium-228
Thorium-227	Uranium-230	Uranium-232

0B Prescribed Equipment

0B001 Nuclear Reactors; associated equipment, components, and systems specially designed, prepared, or adapted or used or intended to be used in such reactors:-

a. Complete nuclear reactors
b. Nuclear reactor vessels
c. Nuclear reactor fuel charging and discharging machines
d. Nuclear reactor control rods and equipment
e. Nuclear reactor pressure tubes
f. Zirconium tubes and assemblies of tubes in which hafnium to zirconium ratio is 1:500 or less
g. Primary coolant pumps
h. Nuclear reactor internals
i. Heat exchangers (steam generators) for use in the primary coolant circuit of a nuclear reactor
j. Neutron detection and measuring instruments for determining neutron flux levels within the core of a nuclear reactor.

0B002 Plants for processing, production, concentration, conversion or recovery of Prescribed Substances (such as uranium, plutonium, thorium, deuterium, heavy water, tritium, lithium); associated equipment, components and systems specially designed, prepared or adapted or used or intended to be used in such plants including but not limited to:

a. Plants for production or concentration of deuterium, heavy water-
    1. Water - Hydrogen Sulphide Exchange Towers
    2. Blowers and Compressors for hydrogen-sulphide gas circulation
    3. Ammonia-Hydrogen Exchange Towers greater than or equal to 35 m in height with diameters of 1.5 m to 2.5 m
    4. Tower Internals and Stage Pumps
    5. Ammonia Crackers with operating pressures greater than or equal to 3 MPa
    6. Infrared Absorption Analyzers capable of 'on-line' hydrogen/ deuterium ratio analysis
    7. Catalytic Burners for conversion of enriched deuterium gas into heavy water
    8. Complete heavy water upgrade systems or columns therefor
b. Plants for the conversion of uranium
c. Plants for the conversion of plutonium
d. Tritium facilities or plants, and equipment therefor
e. Lithium isotope separation facilities or plants, and equipment therefor

0B003 Plants for reprocessing of irradiated nuclear fuel and equipment, components and systems specially designed, prepared or adapted or used or intended to be used in such plants, including but not limited to:

a. Irradiated fuel element chopping machines designed for remote operation
b. Dissolvers capable of withstanding hot and highly corrosive liquid for dissolution of irradiated nuclear fuel and which can be remotely loaded and maintained
c. Solvent extractors and solvent extraction equipment resistant to the corrosive effect of nitric acid
d. Chemical holding or storage vessels resistant to the corrosive effect of nitric acid
e. Industrial equipment including assemblies and components as follows:
    1. High density (lead glass or other) radiation shielding windows
    2. Radiation hardened TV cameras, or lenses therefor
    3. 'Robots' or 'end effectors' specially designed for handling high explosives; and control units therefor
    4. Remote manipulators that can be used to provide remote actions in radiochemical separation operations or hot cells

0B004 Plants for treatment, handling, storage and transportation of radioactive wastes from nuclear reactors or from plants for processing Source Materials or Special Fissionable Materials or from nuclear reprocessing plants; irradiated nuclear fuel; Special Fissionable Materials, and equipment specially designed, prepared, adapted, or intended to be used therefor.

0B005 All systems, associated equipment, components for separation or enrichment of isotopes of uranium, plutonium, lithium or boron, other than analytical instruments, specially designed, prepared, adapted, used or intended to be used therefor as follows:

a. Gas centrifuges and assemblies and components specially designed or prepared for use in gas Centrifuges
b. Specially designed or prepared auxiliary systems, equipment and components for gas centrifuge enrichment plants

c. Specially designed or prepared assemblies and components for use in gaseous diffusion enrichment
d. Specially designed or prepared auxiliary systems, equipment and components for use in gaseous diffusion enrichment
e. Specially designed or prepared systems, equipment and components for use in aerodynamic enrichment plants
f. Specially designed or prepared systems, equipment and components for use in chemical exchange or ion exchange enrichment plants.
g. Specially designed or prepared systems, equipment and components for use in laser-based enrichment plants.
h. Specially designed or prepared systems, equipment and components for use in plasma separation enrichment plants.
i. Specially designed or prepared systems, equipment and components for use in electromagnetic enrichment plants.

0B006 Plants for the fabrication of nuclear reactor fuel elements, and equipment specially designed or prepared therefor including but not limited to:

a. fully automatic pellet inspection stations specially designed or prepared for checking final dimensions and surface defects of the fuel pellets;
b. automatic welding machines specially designed or prepared for welding end caps onto the fuel pins (or rods);
c. automatic test and inspection stations specially designed or prepared for checking the integrity of completed fuel pins (or rods).

Item 'c' typically includes equipment for: 1) x-ray examination of pin (or rod) end cap welds, 2) helium leak detection from pressurized pins (or rods), and 3) gamma-ray scanning of the pins (or rods) to check for correct loading of the fuel pellets inside.

0B007 Plants or systems for production, handling, storage and transportation of Radioisotopes in quantities exceeding 100 Curies (3.7 X 10 12 Becquerel).

0B008 Neutron generators including neutron chain reacting assemblies and fusion assemblies of all kinds for producing fissile materials

0C **Technology**
Technology and software for the development, production or use of prescribed substances or prescribed equipment specified in 0A or 0B.

Category 1 **Toxic chemical agents and other chemicals**

1A **Export of the following chemicals is prohibited:**
(This corresponds to Schedule 1 to the Chemical Weapons Convention (CWC))

Note: Where reference is made below to groups of di-alkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are considered prohibited unless explicitly exempted.

(1). O-Alky (≤C10 , incl. cycloalkyl) alky1 (Me, Et,n-Pr or i-Pr) phosphonofluoridates

e.g. Sarin: O-Isopropy1 methylphosphonofluoridate

Soman: O-Pinacolyl methylphosphonofluoridate

(2). O-Alkyl, (≤C10, incl. cycloalkyl) N,N-dialky1 (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates

e.g. Tabun: O-Ethyl N,N,-dimethyl phosphoramidocyanidate

(3). O-Alkyl (H or ≤ C10, incl. cycloalkyl) S-2-Dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated or protonated salts

e.g. VX: O-Ethyl S-2 diisopropylaminoethyl methyl phosphonothiolate

(4). Sulphur mustards:

2-Chloroethylchloromethylsulphide

Mustard gas: Bis (2-chloroethyl) sulphide

Bis (2-chloroethylthio) methane

Sesquimustard:1,2-Bis (2-chloroethylthio) ethane

1,3-Bis (2-chloroethylthio)-n-propane

1,4-Bis (2-chloroethylthio)-n-butane

1,5-Bis (2-chloroethylthio)-n-Pentane

Bis (2-Chloroethylthiomethyl) ether

O-Mustard: Bis (2-Chloroethylthiomethyl) ether

(5). Lewisites:

Lewisite 1: 2-Chlorovinyldichloroarsine

Lewisite 2: Bis (2-Chlorovinyl) chloroarsine

Lewisite 3: Tris (2-Chlorovinyl) arsine

(6). Nitrogen mustards:

HN1: Bis (2-chloroethyl) ethylamine

HN2: Bis (2-chloroethyl) Chloroarsine

HN3: Tris (2-chloroethyl) amine

(7). Saxitoxin

(8). Ricin

(9). Alkyl (Me, Et, n-Pr or I-Pr) phosphonyldifluorides

e.g. DF: Methyl phosphonyldifluoride

(10). O-Alkyl (H or ≤ C10, incl. cycloalkyl) O-2 dialkyl (Me, Et, n-Pr or i-Pr)-aminoethylalkyl (Me, Et N-Pr or i-Pr) phosphonites and corresponding alkylated or protonated salts

e.g. QL: O-Ethyl O-2-diisopropylaminoethyl methyl phosphonite

(11). Chlorosarin: O-Isopropyl methylphosphonochloridate

(12). Chlorosoman: O-Pinacolyl methylphosphonochloridate

1B **Export of chemicals listed in 1B below is permitted only to States party to the Chemical Weapons Convention**

(This corresponds to Schedule 2 to the Chemicals Weapons Convention)

Note to exporter:

(a) A list of States Parties can be obtained from the Disarmament & International Security Affairs Division of the Ministry of External Affairs (Room No. 40G, South Block, New Delhi) or at the official website of the Organization for the Prohibition of Chemical Weapons at www.opcw.org.

(b) A general permission valid for a period of two years may be applied for export of chemicals in this category. This permission shall be subject to the condition that for each export consignment, exporters shall, within 30 days of exports, notify the details to the National Authority, Chemical Weapons Convention, Cabinet Secretariat ; Ministry of External Affairs (D&ISA); Department of Chemicals and Petrochemicals and the Directorate General of Foreign Trade and submit to DGFT, a copy of Bill of Entry into the destination State Party within 30 days of delivery.

Note: Where reference is made below to groups of dialkylated chemicals, followed by a list of alkyl groups in parentheses, all chemicals possible by all possible combinations and alkyl groups listed in parentheses are included unless explicitly exempted.

1. Amiton 0,0-Diethyl S-[2-(diethylamino) ethyl)] phosphorothiolate and corresponding alkylated or protonated salts

2. PFIB: 1,1,3,3,3,-Pentafluoro-2-(trifluoromethyl)1-propene

3. BZ: 3-Quinuclidinyl benzilate

4. Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms,
   e.g.Methylphosphonyl dichloride

Dimethyl methylphosphonate
Exemption:- Fonofos: O-Ethyl S-phenyl ethylphosphonothiolothionate

5. N, N-Dialkyl (ME, Et, n-Pr or i-Pr) phosphoramidic dihalides

6. Dialkyl (Me, Et, n-Pr or i-Pr) N, N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates

7. Arsenic trichloride

8. 2,2-Diphenyl-2 hydroxyacetic acid

9. Quinuclidine-3-ol

10. N,H-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2 -chlorides and corresponding protonated salts

11. N, N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts

Exemptions: N,N-Dimethylaminoethanol and corresponding protonated salts
N,N-Diethylaminoethanol and corresponding protonated salts

12. N, N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts

13. Thiodiglycol: Bis(2-hydroxyethyl) sulphide

14. Pinacolyl alcohol: 3,3-Dimethylbutane-2-ol

A List of commercially important Schedule-2 Chemicals of CWC is given below :

Sl. No.	**Name of Chemical**	**Entry into Schedule**	**CAS (Chemical Abstract Service) Numbers**	**ITC(HS) codes**
1.	2-Chloro N, N-Di-isopropyl ethylamine	2B10	4261-68-1	29211911
2.	Diethyl amino Ethanethiol	2B12	100-38-9	29221910
3.	O, O, Dimethyl Methyl Phosphonate	2B04	756-79-6	29209045
4.	2-Hydroxy N, N-Diisopropyl Ethylamine	2B11	96-80-0	29221111
5.	N, N-Diethyl Amino ethyl Chloride Hydrochloride	2B10	869-24-9	29221112
6.	Di-ethyl Amino ethanethiol Hydrochloride	2B12	1942-52-5	29221113
7.	Di-Methyl Amino ethyl chloride Hydrochloride	2B10	4584-46-7	29221114
8.	Di-Methyl Amino ethanethiol	2B12	108-02-1	29221115
9.	Di-Methyl Amino ethanethiol Hydrochloride	2B12	13242-44-9	29221116
10.	Phosphorothioic acid, S [2-(diethylamino) ethyl] O, O – diethyl ester	2A01	78-53-5	29201910
11.	1-Propene, 1,1, 3, 3, 3, - Pentafluoro – 2- (trifluoromethyl) (PFIB)	2A02	382-21-8	29033911
12.	Benzeneacetic acid, alphahydroxy – alpha-phenyl, 1 – azabicyclo [2.2.2.] oct-3-yl ester	2A03	6581-06-2	29392050
13.	Phosphonic Acid, Methyl-compound with (aminoimino methyl) urea (1: 1)	2B04	84402-58-4	29209047
14.	1-Propanaminium N, N, N-trimethyl – 3- [1-oxo-9 octadecenyl) amino]-. (Z)-methyl methylphosphonate	2B04	70055-71-9	29209048

15.	Phosphonic acid, [methyl bis (5-ethyl-2-methyl-2-oxido-1, 3, 2-dioxaphosphorinan-5-yl) methyl] ester	2B04	42595-45-9	29209051
16.	Phosphonic acid, [methyl-(5-ethyl-2-methyl 2-oxido-1,3,2-dioxaphosphorinan-5-yl) methyl] ester	2B04	41203-81-0	29209052
17.	Phosphonic acid, propyl-dimethyl ester	2B04	18755-43-6	29209053
18.	Phosphonous acid, methyl-diethyl ester	2B04	15715-41-0	29209054
19.	Phosphonic acid, ethyl-	2B04	6779-09-5	29209055
20.	Phosphonic acid, propyl-	2B04	4672-38-2	29209056
21.	Phosphinic acid, methyl-	2B04	4206-94-4	29209057
22.	Phosphonochloridic acid, methyl-, methyl ester	2B04	1066-52-0	29209058
23.	Phosphonothioic dichloride, ethyl-	2B04	993-43-1	29209061
24.	Phosphonic acid methyl-	2B04	993-13-5	29209062
25.	Phosphonic acid, methyl-, dimethyl ester	2B04	756-79-6	29209063
26.	Phosphonic dichloride, methyl-	2B04	676-97-1	29209064
27.	Phosphonous dichloride, methyl-	2B04	676-83-5	29209065
28.	Phosphonic acid, ethyl-, diethyl ester	2B04	78-38-6	29209066
29.	Arsenous trichloride	2B07	7784-34-1	28121060
30.	Benzeneacetic acid, alpha-hydroxy-alpha-phenyl	2B08	76-93-7	29181910
31.	1-Azabicyclo (2.2.2.) octan-3-ol	2B09	1619-34-7	29333930
32.	Ethanamine, 2-Chloro-N, N-dimethyl-	2B10	107-99-3	29211914
33.	Ethanol, 2-[bis(1-methylethyl) amino]-	2B11	96-80-0	29221920
34.	Ethanethiol, 2-(diethylamino)-	2B12	100-38-9	29221930
35.	Ethanol, 2, 2'-thiobis-	2B13	111-48-8	29309091
36.	2-Butanol, 3, 3-dimethyl-	2B14	464-07-3	29051910

1C **Export of Chemicals as specified below is allowed to State Parties to the CWC without an export licence subject to the condition that the exporter shall notify within 30 days of export to the National Authority, Chemicals Weapons Convention, Cabinet Secretariat; the Ministry of External Affairs (D&ISA); the Department of Chemicals & Petro-chemicals, and the DGFT of such exports in the prescribed format (Aayat Niryat Form) along with the End-Use Certificate and submit to the DGFT a copy of the bill of entry into the destination State Party within 30 days of delivery. Export of chemicals as specified below to states not party to the Chemical Weapons Convention shall continue to be restricted and will be allowed only against an export licence, and in that case also exporters shall submit to the DGFT a copy of the bill of entry into the destination country within 30 days of export.**

Sl.No.	Name of Chemical	Entry into Schedule	CAS Numbers	ITC (HS) codes
1.	Phosgene : (Carbonyl dichloride)	3A01	75-44-5	28121010
2.	Cyanogen chloride [(CN) C1]	3A02	506-77-4	28530091
3.	Hydrocyanic acid	3A03	74-90-8	28111910
4.	Chloropicrin:Trichloronitro-Methane	3A04	76-06-2	29049080
5.	Phosphorus Oxychloride	3B05	10025-87-3	28121030
6.	Phosphorus trichloride	3B06	7719-12-2	28121021

7.	Phosphorous Pentachloride	3B07	10026-13-8	28121022
8.	Trimethyl Phosphite	3B08	121-45-9	29209041
9.	Triethyl Phosphite	3B09	122-52-1	29209042
10.	Dimethyl Phosphite	3B10	868-85-9	29209043
11.	Diethyl Phosphite	3B11	762-04-9	29209044
12.	Sulphur monochloride	3B12	10025-67-9	28121042
13.	Sulphur dichloride	3B13	10545-99-0	28121043
14.	Thionyl Chloride	3B14	7719-09-7	28121047
15.	Ethyldiethanolamine	3B15	139-87-7	29221211
16.	Methyldiethanolamine	3B16	105-59-9	29221212
17.	Triethanolamine	3B17	102-71-6	29221300

Category 2 Micro-organisms, toxins

2A Bacteria, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

2A001 Bacillus anthracis
2A002 Bordetella bronchoseptica
2A003 Brucella abortus,
2A004 Brucella melitensis
2A005 Brucella suis
2A006 Chlamydia psittaci
2A007 Clostridium botulinum
2A008 Clostridium perfringes
2A009 Corynebacterium diphtheriae
2A010 Francisella tularensis
2A011 Klebsiella pneumoniae
2A012 Legionlla pneumophila
2A013 Leptospira interrogans - all serotypes reported in India
2A014 Mycobacterium bovis
2A015 Mycobacterium tuberculosis
2A016 Mycoplasma mycoides - var mycoides
2A017 Mycoplasma mycoides - var Capri
2A018 Neisseria meningitidis
2A019 Paseturella multicoda type B
2A020 Pseudomonas mallei
2A021 Pseudomonas pseudomallei
2A022 Salmonella paratyphi
2A023 Shigella dysenteriae
2A024 Staphylococcus aureus
2A025 Streptococcus pneumoniae
2A026 Vibrio cholerae elter
2A027 Vibrio Cholerae 0139
2A028 Yersinia pestis

2B Fungi, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:

2B001 Blastomyces dermatitidis
2B002 Coccidiodes immitis
2B003 Histoplasma capulatum
2B004 Nocardia asteroides
2B005 Paracoccidioides braziliensis

2C **Parasites, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:**

2C001 Entamoeba histolytica
2C002 Babesia microti
2C003 Babesia divergens
2C004 Blostidium coli
2C005 Cryptosporidium spp.
2C006 Leishmania species
2C007 Naegleria australiensis
2C008 Naegleria fowleri
2C009 Plasmodium falciparum
2C010 Pneumocystis carinii
2C011 Schistosoma mansoni
2C012 Schistosoma japonicum
2C013 Schistosoma hemotobium
2C014 Toxoplasma gondii
2C015 Trichinella spiralis
2C016 Trypanosoma bruiei

2D **Viruses, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:**

2D001 African Horse Sickness virus
2D002 African Swine Fever virus
2D003 Avian influenza virus
2D004 Blue tongue virus
2D005 Camel pox virus
2D006 Chikungunya virus
2D007 Crimean-Congo hemorrhagic fever virus
2D008 Dengue virus
2D009 Eastern equine encephalitis virus
2D010 Ebola fever virus
2D011 Encephalomyocarditis virus (EMC)
2D012 Foot and Mouth Disease virus (all serotypes and subtypes)
2D013 Guanirito virus
2D014 Goatpox virus
2D015 Hantaan virus
2D016 Herpes virus simiae (monkey B virus)
2D017 Herpes ateles, Herpes saimiri
2D018 HIV- 1 & HIV-2 and other strains of SIV
2D019 Hog cholera virus
2D020 Human T-cell Leukemia virus
2D021 Junin virus

2D022 Japanese encephalitis virus
2D023 Kyasanur Forest Disease virus and Central European encephalitis viruses.
2D024 Korean hemorrhagic fever virus
2D025 Lymphocytic choriomeningitis virus (LCM)
2D026 Lassa virus
2D027 Marburg virus
2D028 Murrey valley encephalitis virus
2D029 Marchupo virus
2D030 Mason-pfizer monkey virus
2D031 Monkey pox virus
2D032 Newcastle disease virus
2D033 Omsk hemorrhagic fever virus
2D034 Peste des petits ruminant virus
2D035 Porcine enterovirus type I
2D036 Powassan virus
2D037 Rabies virus -all strains
2D038 Respiratory syncitial virus
2D039 Rift Valley Fever virus
2D040 Rinderpest virus
2D041 Sabia virus
2D042 Sheep pox (field strain)
2D043 Sin Nombre virus
2D044 Smallpox virus
2D045 St.Louis encephalitis virus
2D046 Swine Fever virus
2D047 Tick-borne encephalitis virus (Russian Spring Summer Encephalitis virus)
2D048 Teschen disease virus (Porcine entero virus type 1)
2D049 Variola virus
2D050 Venezuelan encephalitis virus
2D051 Vesicular stomatitis virus
2D052 Western encephalitis virus
2D053 Yellow fever virus, 17 D vaccine strain

2E **Rickettsials, whether natural, enhanced or modified, either in the form of isolated live cultures or as material including living material which has been deliberately inoculated or contaminated with such cultures for the following:**

2E001 Coxiella burnetti
2E002 Rickettsiae rickettsii
2E003 Rickettsia quintana
2E004 Rickettsia prowazebi

2F **Toxins**

2F001 Abrins
2F002 Aflatoxins
2F003 Anatoxins
2F004 Botulinum toxin (s) (clostradium botulinum)
2F005 Bungarotoxins
2F006 Clostridium perfringens toxins
2F007 Corynebacterium diphtheriae toxins
2F008 Cyanginosins (Microcystins) (Microcystic aeuginosa)

2F009 Enterotoxin (Staphylococcus aureus)
2F010 Neurotoxin (Shigella dysenteriae)
2F011 Ricins
2F012 Shigatoxins
2F013 Saxitoxins
2F014 Trichothecene mycotoxins
2F015 Tetanus toxin (clostridium tetani)
2F016 Tetrodotoxin (Spheroides rufripes)
2F017 Verrucologen (M. verrucadia)

2G Plant pathogens

2G001 Bemisia tabaci
2G002 Colletotrichum coffeanum var. virulans
2G003 Clavicep purpurea
2G004 Dothistroma pini (Scirrhia pini)
2G005 Erwinia amylovora
2G006 Frankliniella occidentalis
2G007 Microcyclus ulei
2G008 Peronospora hyoscyami de Bary f.sp. tabacina (Adam) skalicky
2G009 Phytophthora infestans
2G010 Puccinia graminis
2G011 Puccinia erianthi
2G012 Puccinia striiformiis (Puccinia glumarum)
2G013 Pyricularia oryzae
2G014 Pseudomonas solanacearum
2G015 Peronospora hyscyami de Bary
2G016 Ralstonia solanacearum
2G017 Sugar cane Fiji disease virus
2G018 Sclerotinia sclerotiorum
2G019 Tilletia indica
2G020 Thrips palmi
2G021 Ustilago Maydis
2G022 Xanthomonas albilineans
2G023 Xanthomonas campestris pv citri
2G024 Xanthomonas campestris pv oryzae

2H Genetically Modified Organisms

2H001 Genetically-modified micro-organisms or genetic elements that contain nucleic acid sequences associated with pathogenicity and are derived from organisms specified above in 2A, 2B, 2C, 2D, 2E and 2H.

Genetically-modified micro-organisms or genetic elements that contain nucleic acid sequences coding for any of the toxins specified above in 2F.

Category 3 Materials, Materials Processing Equipment and related technologies

3A Materials

3A1 Special Materials

3A101 Zirconium, beryllium, magnesium, and alloys of these in particle size less than 60 µm

3A102 Maraging steel in any form in which any linear dimension exceeds 75 mm, or in the form of sheet, plate or tubing with a wall or plate thickness equal or less than 5 mm.

3A103 Tungsten (CAS 12070-12-1), molybdenum(CAS 1317-33-5), and alloys of those metals in the form of uniform spherical or atomized particles of size less than 500 µm

3A104 Germanium

3A105 Gallium

3A106 Indium

3A107 Titanium alloys including Titanium-stabilised Duplex Stainless Steel (Ti-DSS) (other than as specified at 0A307)

3A108 Aluminium alloys in any form 'capable of acquiring' an ultimate tensile strength of 460 MPa or more at 293 K (20 degrees C)

Note: The phrase 'capable of acquiring' encompasses alloys before or after heat treatment

3A109 Bismuth having a purity of 99.99% or greater by weight and containing less than 10 parts per million by weight of silver

3A110 Calcium containing less than 1000 parts per million by weight of metallic impurities other than magnesium and containing less than 10 parts per million by weight of Boron

3A111 Chlorine trifluoride (ClF3)

3A112 Magnesium containing less than 200 parts per million by weight of metallic impurities other than calcium and containing less than 10 parts per million by weight of boron

3A113 (a) Tungsten, tungsten carbide, and alloys containing more than 90% tungsten by weight in forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 and 300 mm and a mass greater than 20 kg.

(b) Tungsten materials in the solid form usable for the fabrication of missile components in complete rocket systems of 5A and unmanned aerial vehicles of 5B, having all of the following:

1. Any of the following material compositions:
i. Tungsten and alloys containing 97% by weight or more of tungsten;
ii. Copper infiltrated tungsten containing 80% by weight or more of tungsten; or
iii. Silver infiltrated tungsten containing 80% by weight or more of tungsten; and

2. Able to be machined to any of the following products:

i. Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;

ii. Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater; or

iii. Blocks having a size of 120 mm x 120 mm x 50 mm or greater.

3A114 a. Nickel powder of purity 99.0% or greater by weight and having a mean particle size of less than 10 μm;

b. Porous nickel metal produced from the nickel powder specified above

3A115 Natural boron, boron carbide or metal borides having a boron purity of 85% or more.

3A116 Fibrous or filamentary materials, and prepregs, as follows:

a. Carbon or aramid fibrous or filamentary materials having 'specific modulus' of 12.7 x 106 m or greater; or 'specific tensile strength' of 23.5 x 104 m or greater;

b. Glass fibrous or filamentary materials having 'specific modulus' of 3.18 x 106 m or greater; and 'specific tensile strength' of 7.62 x 104 m or greater;

c. Thermoset resin impregnated continuous yarns, rovings, tows or tapes with a width of 15 mm or less (prepregs), made from carbon or glass fibrous or filamentary materials specified in (a) or (b) above.

3A117 Carbon - carbon composites.

3A2 Structural Materials

3A201 Structural materials such as:

a. Composite structures, laminates, resin impregnated fibre prepregs and metal coated fibre preforms made either with an organic matrix or metal matrix utilizing fibrous or filamentary reinforcements, and manufactures thereof, specially designed for use in rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets), unmanned aerial vehicles and cruise missiles and subsystems thereof;

b. Resaturated pyrolized (i.e. Carbon-Carbon) materials specially designed for rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets), unmanned aerial vehicles and cruise missiles;

c. Fine grain re-crystalised bulk graphites and pyrolytic or fibrous reinforced graphites usable for rocket nozzles and re-entry vehicles nose tips;

d. Ceramic composite materials (dielectric constant less than 6 at any frequency from 100 MHz to 100 GHz**)** for use in missile radomes;

e. Materials and coatings for reduced radar reflectivity;

f. Bulk machinable silicon-carbide reinforced unfired ceramic usable in re-entry vehicles nose tips.

g. Reinforced silicon-carbide ceramic composites usable for nose tips, re-entry vehicles, nozzle flaps, usable in complete rocket systems of 5A and complete unmanned aerial vehicles of 5B .

3A3 Rocket propellants and constituent chemicals:

3A301 Propulsive substances – Hydrazine (CAS-302-01)and its derivatives usable as rocket fuel substances including Monomethylhydrazine (MMH)(CAS 60-34), Unsymmetrical di-methyl hydrazine (UDMH), (CAS 57-14-7)Hydrazine nitrate, (except aromatic hydrazines and their salts, adipic acid dihydrazide), ammonium perchlorate, spherical or spheroidal aluminium powder(CAS 7429-90-5);

3A302 Metal fuels containing any of the following: Zirconium(CAS 7440-67-7), beryllium(CAS 7440-41-7), magnesium, titanium, tungsten, boron and boron alloys, zinc, and alloys of magnesium(CAS 7439-95-4);

3A303 Polymeric substances:
Carboxyl-terminated polybutadiene (CTPB)
Hydroxy-Terminated Polybutadiene (HTPB)
Glycidyl azide polymer (GAP)
Polybutadiene acrylic acid (PBAA)
Polybutadiene acrylonitrile (PBAN)
Polytetrahydrofuran polyethylene glycol (TPEG)

Technical Note:
Polytetrahydrofuran polyethylene glycol (TPEG) is a block co-polymer of poly 1,4- Butanediol and polyethylene glycol (PEG)

3A304 Composite propellants and composite modified double base propellants;

3A305 High energy density materials such as boron slurry;

3A306 Oxidizers/fuels - Perchlorates, chlorates or chromates mixed with powdered metals or other high energy fuel components; Dinitrogen trioxide, Nitrogen dioxide / Dinitrogen tetroxide, Mixed Oxides of Nitrogen (MON), Dinitrogen pentoxide, Inhibited red fuming nitric acid (IRFNA) (CAS 8007-58-7), Ammonium perchlorate (CAS 7790-98-9), Ammonium Dinitramide (ADN) (CAS 140456-78-6), Hydrazinium Nitroformate (HNF), 2,4,6,8,10,12-Hexanitrohexaazaisowurtzitane (CL-20) (CAS 135285-90-4), Compounds composed of fluorine and one more of other halogens, oxygen or nitrogen.

3A307 Bonding agents - Tris (1-2 (2-methyl)) aziridinyl phosphine oxide (MAPO)(CAS 57-39-6), Trimesoyl-1-(2-ethyl) aziridene (HX-868, BITA)(CAS 7722-73-8), Tepanol (HX-878)(CAS 68412-46-4), Tepan (HX-879) reaction product of tetraethlylenepentamine and acrylonitrile (CAS 68412-45-3), and Polyfunctional aziridine amides with isophthalic, trimesic, isocyanuric, or trimethyladipic backbone also having a 2-methyl or 2-ethyl aziridine group including 1,1′-Isophthaloyl-bis(2-methylaziridene (CAS 7652-64-4), (HX-752, HX-874, and HX-877);

3A308 Curing agents and reaction catalysts - Triphyenyl bismuth (TPB)(CAS 603-33-8);

3A309 Burning rate modifiers –

a. Carboranes, decaboranes, pentaboranes and derivatives thereof;
b. Ferrocene derivatives, as follows:
    1. Catocene (CAS 37206-42-1);
    2. Ethyl ferrocene;
    3. Propyl ferrocene(CAS 1273-89-8)
    4. n-Butyl ferrocene(CAS 31904-29-7);
    5. Pentyl ferrocene (CAS 1274-00-6);
    6. Dicyclopentyl ferrocene(CAS 20773-28-8);
    7. Dicyclohexyl ferrocene;
    8. Diethyl ferrocene;
    9. Dipropyl ferrocene;
    10. Dibutyl ferrocene(CAS 1274-08-4);
    11. Dihexyl ferrocene (CAS 93894-59-8);
    12. Acetyl ferrocenes;
    13. Ferrocene Carboxylic acids;
    14. Butacene;
c. Other ferrocene derivatives usable as rocket propellant burning rate modifiers.

3A310 Nitrate esters and nitrated plasticisers as follows:

a. Triethylene glycol dinitrate (TEGDN);
b. Trimethylolethane trinitrate (TMETN)(CAS 3032-55-1) ;
c. 1,2,4-butanetriol trinitrate (BTTN)(CAS 6659-60-5) ;
d. Diethylene glycol dinitrate (DEGDN);
e. 4,5 diazidomethyl-2-methyl-1,2,3-triazole (iso-DAMTR);
f. Nitratoethylnitramine (NENA) based plasticisers, as follows:
    1. Methyl-NENA (CAS 17096-47-8);
    2. Ethyl-NENA (CAS 85068-73-1);
    3. Butyl-NENA (CAS 82486-82-6);
g. Dinitropropyl based plasticisers, as follows:
    1. Bis (2,2-dinitropropyl) acetal (BDNPA) (CAS 5108-69-0);
    2. Bis (2,2-dinitropropyl) formal (BDNPF) (CAS 5917-61-3).

3A311 Stabilisers as follows:

a. 2-Nitrodiphenylamine (CAS 119-75-5);
b. N-methyl-p-nitroaniline (CAS 100-15-2).

3A4 High explosives

3A401 High explosives, and propellants or mixtures containing any of the following;

a. Cycloteramethylenetetranitramine (HMX);
b. Cyclotrimethylenetrinitramine (RDX);
c. Triaminotrinitrobenzene (TATB);
d. Hexanitrostilbene (HNS);
e. Any explosive with a crystal density greater than 1.8 g/cm^3 and having a detonation velocity greater than 8000 m/s.

License applications for the export of items at 3A401a and 3A401b will normally be denied.

3A5 Stealth materials

3A501 a. Materials for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures;

b. Devices, including made from non-stealth material, for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures;

3A502 Materials and coatings (including paints) specially designed for reduced or tailored reflectivity or emissivity in the microwave, infrared or ultraviolet spectra other than coatings (including paints) when specially used for thermal control of satellites.

3A503 Technology related to the development, production or use of items in 3A.

3B Materials processing and "production equipment", related "technology" and specially designed components and accessories therefor.

3B001 Remote manipulators that provide mechanical translation of human operator actions by electrical, hydraulic or mechanical means and operating arm and terminal fixture that can be used to provide remote actions;

3B002 Multidirectional, multidimensional weaving and interlacing machines, including adapters and modification kits for weaving, interlacing or braiding fibres to fabricate composite structures except textile machinery which has not been modified for rocket systems;

3B003 Equipment designed or modified for production of fibrous or filamentary materials as follows: converting polymeric substances; vapour deposition on heated filament substrates; wet spinning of refractory ceramics.

3B004 Equipment designed or modified for special fibre surface treatment or for producing prepregs and preforms, including rollers, tension stretchers, coating equipment, cutting equipment and clicker dies;

3B005 Chemical vapour deposition furnaces designed or modified for the densification of carbon-carbon composites.

3B006 Pyrolytic deposition and densification equipment including:

a. Technology for producing pyrolytically derived materials formed on a mould, mandrel or other substrate from precursor gases.
b. Specially designed nozzles for the above process.
c. Equipment and process controls and specially designated software thereof, specially designed or modified for densification and pyrolysis of structural composite rocket nozzles and re-entry vehicle nose tips.

3B007 Production equipment usable for or specially designed or modified for production, handling, mixing, curing, casting, pressing, machining, extruding or acceptance testing of the solid or liquid rocket propellants or rocket propellant constituents and related technology.

3B008 Refrigeration units and equipment capable of cooling hydrogen or helium to -250 degrees Celsius (23K) or lower.

3B009 Continuous nitrators.

3B010 Dehydration presses.

3B011 Screw extruders usable for or specially designed or modified for high explosive extrusion.

3B012 Cutting machines for the sizing of extruded propellant.

3B013 Sweetie barrels (tumblers) 1.85 m or more in diameter and having over 227 kg product capacity;

3B014 Continuous mixers or batch mixers with provision for mixing under vacuum.

3B015 Fluid energy mills usable for grinding or milling any of the items in 3A3.

3B016 Equipment to achieve both sphericity and uniform particle size in metal powders.

a. Metal powder production equipment usable for production, in a controlled environment, of spherical or atomized materials including:
b. Plasma generators (high frequency arc-jets) usable for obtaining sputtered or spherical metallic powders with organisation of the process in an argon-water environment
c. Electroburst equipment usable for obtaining sputtered or spherical metallic powders with organisation of the process in an argon-water environment.

3B017 Sputter ion pumps

3B018 Technical data (including processing conditions) and procedures for the regulation of temperature, pressure or atmosphere in autoclaves or hydroclaves when used for the production of composites or partially processed composites.

3B019 Software specially designed or modified for the use of equipment for the production and handling of materials specified in 3A

3B020 Technology for the development, production or use of items in 3B

3C **[Reserved]**

3D **Chemical and biomaterial manufacturing and handling equipment and facilities:**

3D001 Reaction vessels, reactors or agitators, storage tanks, containers or receivers, heat exchangers or condensers, distillation or absorption columns, valves, remotely operated filling equipment, multi-walled piping, bellows, diaphragm pumps, vacuum pumps, fans, compressors, blowers, gas (including air) handling or other substance-transfer equipment wholly or partly made from any of the following materials;

a. Nickel or alloys with more than 40% nickel by weight
b. Alloys with more than 25% nickel and 20% chromium by weight (e.g. 'Hastelloy', 'Illium'. 'Inconel', 'Incoloy')
c. Fluoropolymers
d. Glass or glass lined (including vitrified or enamelled coating)
e. Graphite
f. Tantalum or tantalum alloys
g. Titanium or titanium alloys
h. Zirconium or zirconium alloys
i. Ceramics
j. Ferrosilicon

Note: 3D001 does not control the following items:

a. Open vessels fabricated from glass sheets (such as aquariums, water tanks etc.); or cookware, table-ware, decorative glass or ceramic items (such as vases, art objects, etc.)
b. Glass-ware (whether or not metal-jacketed) or glass-lined reaction vessels or reactors, whether or not equipped with agitators, provided that the total internal (geometric) volume of each vessel or reactor is greater than 20,000 litres (20 m3) or less than or equal to 100 litres (0.1 m3). Examples of the latter capacity glass or ceramic-ware include standard laboratory equipment such as test tubes, flasks, retorts etc.

3D002 Incinerators designed to destroy any chemicals specified in Category 1.

3D003 Combustors or pyrolysers capable of a heat-zone ('burner') temperature greater than 1,273 K (1000 Degree Centigrade), and in which any surfaces that come into direct contact with material coming into the containing chamber are made from, or lined with, any of the following materials:

a. Alloys with more than 25% nickel and 25% chromium by weight; (e.g., 'Hatelloy', 'Illium', 'Inconel', 'Incoloy')
b. Nickel, or alloys with more than 40% nickel by weight; or
c. Titanium;
d. Ceramics.

3D004 Equipment related to P3, P4 facilities such as protective suits and class III safety cabinets.

No licenses shall be granted for complete containment facilities at P3, P4, containment level as specified in the World Health Organization (WHO) bio-safety manual.

3D005 Technology related to the development, production or use of items in 3D.

Category 4 Nuclear-related other equipment, assemblies and components; test and production equipment; and related technology not controlled under Category 0

4A Equipment, assemblies, components including test and production equipment

4A001 Flow-forming machines, spin-forming machines capable of flow-forming functions, and mandrels, as follows:

a. For flow forming machines refer to 5A205.
b. Spin forming machines having both of the following characteristics:
   1. Three or more rollers (active or guiding); and
   2. which can be equipped with 'numerical control' units or a computer control.
c. Rotor-forming mandrels designed to form cylindrical rotors of inside diameter between 75 and 400 mm.

Note: Item 4A001a and 4A001b include machines which have only a single roller designed to deform metal plus two auxiliary rollers which support the mandrel, but do not participate directly in the deformation process.

4A002 Machine tools, as follows, for removing or cutting metals, ceramics, or composites, which, according to the manufacturer's technical specifications, can be equipped with electronic devices for simultaneous contouring control in two or more axes:

a. Machine tools for turning, that have positioning accuracies with all compensations available better (less) than 6 µm along any linear axis (overall positioning) for machines capable of machining diameters greater than 35mm;

Note: Item 4A002a does not control bar machines, limited to machining only bar feed through, if maximum bar diameter is equal to or less than 42 mm and there is no capability of mounting chucks. Machines may have drilling and/or milling capabilities for machining parts with diameters less than 42 mm.

b. Machine tools for milling, having any of the following characteristics:
   1. Positioning accuracies with all compensations available better (less) than 6 µm along any linear axis (overall positioning); or
   2. Two or more contouring rotary axes;

Note: Item 4A002b does not control milling machines having both of the following characteristics:

   1. X-axis travel greater than 2 m; and
   2. Overall positioning accuracy on the x-axis worse (more) than 30 µm.

c. Machine tools for grinding, having any of the following characteristics:
   1. Positioning accuracies with all compensations available better (less) than 4 µm along any linear axis (overall positioning); or
   2. Two or more contouring rotary axes;

Note: Item 4A002c does not control grinding machines as follows:

   1. Cylindrical external, internal, and external-internal grinding machines having all the following characteristics:
      a. Limited to cylindrical grinding;
      b. A maximum work-piece outside diameter or length of 150 mm;
      c. Not more than two axes that can be coordinated simultaneously for contouring control; and
      d. No contouring c-axis;

2. Jig grinders with axes limited to x, y, c, and a, where c-axis is used to maintain the grinding wheel normal to the work surface, and the a-axis is configured to grind barrel cams;
3. Tool or cutter grinding machines with software specially designed for the manufacturing of tools or cutters;
4. Crankshaft or camshaft grinding machines.

d. Non-wire type Electrical Discharge Machines (EDM) that have two or more contouring rotary axes and that can be coordinated simultaneously for contouring control.

Note: Stated positioning accuracy levels derived under the following procedures from measurements made according to ISO 230/2 (1988) or national equivalents may be used for each machine tool model if provided to, and accepted by, national authorities instead of individual machine tests.

Stated positioning accuracy are to be derived as follows:

1. Select five machines of a model to be evaluated;
2. Measure the linear axis accuracies according to ISO 230/2 (1988);
3. Determine the accuracy values (A) for each axis of each machine. The method of calculating the accuracy value is described in the ISO 230/2 (1988) standard;
4. Determine the average accuracy value of each axis. This average value becomes the stated positioning accuracy of each axis for the model (Âx, Ây...);
5. Since Item 4A002 refers to each linear axis, there will be as many stated positioning accuracy values as there are linear axes;
6. If any axis of a machine tool not controlled by Items 4A002a, 4A002b, or 4A002c has a stated positioning accuracy of 6 µm or better (less) for grinding machines, and 8 µm or better (less) for milling and turning machines, both according to ISO 230/2 (1988), then the builder should be required to reaffirm the accuracy level once every eighteen months.

Technical Notes

1. Axis nomenclature shall be in accordance with International Standard ISO 841, Numerical Control Machines Axis and Motion Nomenclature.
2. Not counted in the total number of contouring rotary axes are secondary parallel contouring rotary axes the centre line of which is parallel to the primary rotary axis.
3. Rotary axes do not necessarily have to rotate over 360 degrees. A rotary axis can be driven by a linear device, e.g., a screw or a rack and-pinion.

4A003 Dimensional inspection machines, instruments, or systems, as follows:

a. Computer controlled or numerically controlled dimensional inspection machines having both of the following characteristics:
   1. Two or more axes; and
   2. A one-dimensional length measurement uncertainty equal to or better (less) than (1.25 + L/1000) µm tested with a probe of an accuracy of

better (less) than 0.2 μm (L is the measured length in millimetres);

b. ‘Linear displacement’ measuring instruments, as follows:
   1. Non-contact type measuring systems with a resolution equal to or better (less) than 0.2 μm within a measuring range up to 0.2 mm;
   2. Linear variable differential transformer (LVDT) systems having both of the following characteristics:
      a. Linearity equal to or better (less) than 0.1% within a measuring range up to 5 mm; and
      b. Drift equal to or better (less) than 0.1% per day at a standard ambient test room temperature ± 1 K;
   3. Measuring systems having both of the following characteristics:
      a. Contain a laser; and
      b. Maintain for at least 12 hours, over a temperature range of ± 1 K around a standard temperature and a standard pressure:
         1. A resolution over their full scale of 0.1 μm or better; and
         2. With a measurement uncertainty equal to or better (less) than (0.2 + L/2000) μm (L is the measured length in millimetres);

Note: Item 4A003b3 does not control measuring interferometer systems, without closed or open loop feedback, containing a laser to measure slide movement errors of machine tools, dimensional inspection machines, or similar equipment.

Technical Note: In Item 4A003b ‘linear displacement’ means the change of distance between the measuring probe and the measured object.

c. Angular displacement measuring instruments having an angular position deviation equal to or better (less) than 0.00025°;

Note: Item 4A003c does not control optical instruments, such as autocollimators, using collimated light to detect angular displacement of a mirror.

d. Systems for simultaneous linear-angular inspection of hemi-shells, having both of the following characteristics:
   1. Measurement uncertainty along any linear axis equal to or better (less) than 3.5 μm per 5 mm; and
   2. Angular position deviation equal to or less than 0.02°.

Notes: 1. Item 4A003 includes machine tools that can be used as measuring machines if they meet or exceed the criteria specified for the measuring machine function**.**

2. Machines described in Item 4A003 are controlled if they exceed the threshold specified anywhere within their operating range.

T*echnical Note:* All parameters of measurement values in this item represent plus/minus, i.e., not total band.

4A004 Controlled atmosphere (vacuum or inert gas) induction furnaces, and power supplies therefor, as follows:

a. Furnaces having all of the following characteristics:
   1. Capable of operation at temperatures above 1123 K (850 °C);
   2. Induction coils 600 mm or less in diameter; and
   3. Designed for power inputs of 5 kW or more;

Note: Item 4A004a does not control furnaces designed for the processing of semiconductor wafers.

b. Power supplies, with a specified output power of 5 kW or more, specially designed for furnaces specified in Item 4A004a.

4A005 'Isostatic presses', and related equipment, as follows:

a. 'Isostatic presses' as specified in 5A208;
b. Dies, moulds, and controls specially designed for the 'isostatic presses' specified in Item 4A005a.

Technical Notes:

1. In Item 4A005 ´Isostatic presses' means equipment capable of pressurizing a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal pressure in all directions within the cavity upon a work piece or material.

2. In Item 4A005 the inside chamber dimension is that of the chamber in which both the working temperature and the working pressure are achieved and does not include fixtures. That dimension will be the smaller of either the inside diameter of the pressure chamber or the inside diameter of the insulated furnace chamber, depending on which of the two chambers is located inside the other.

4A006 Vibration test systems, equipment, and components as follows:

a. Electrodynamic vibration test systems, having all of the following characteristics:
   1. Employing feedback or closed loop control techniques and incorporating a digital control unit;
   2. Capable of vibrating at 10 g RMS or more between 20 and 2000 Hz; and
   3. Capable of imparting forces of 50 kN or greater measured 'bare table';
b. Digital control units, combined with software specially designed for vibration testing, with a real-time bandwidth greater than 5 kHz and being designed for a system specified in Item 4A006a;
c. Vibration thrusters (shaker units), with or without associated amplifiers, capable of imparting a force of 50 kN or greater measured 'bare table', which are usable for the systems specified in Item 4A006a;
d. Test piece support structures and electronic units designed to combine multiple shaker units into a complete shaker system capable of providing an effective combined force of 50 kN or greater, measured 'bare table,' which are usable for the systems specified in Item 4A006a.

Technical Note : In Item 4A006 'bare table' means a flat table, or surface, with no fixtures or fittings.

4A007 Vacuum or other controlled atmosphere metallurgical melting and casting furnaces and related equipment, as follows:

a. Arc re-melt and casting furnaces having both of the following characteristics:
   1. Consumable electrode capacities between 1000 and 20000 cm3; and
   2. Capable of operating with melting temperatures above 1973 K (1700 °C);
b. Electron beam melting furnaces and plasma atomisation and melting furnaces, having both of the following characteristics:
   1. A power of 50 kW or greater; and
   2. Capable of operating with melting temperatures above 1473 K (1200 °C);
c. Computer control and monitoring systems specially configured for any of the furnaces specified in Item 4A007a or 4A007b.

4A008 Crucibles made of materials resistant to liquid actinide metals, as follows:

a. Crucibles having both of the following characteristics:
   1. A volume of between 150 cm3 (150 ml) and 8000 cm3 (8 litres); and
   2. Made of or coated with any of the following materials, having a purity of 98% or greater by weight:
      a. Calcium fluoride (CaF2);
      b. Calcium zirconate (metazirconate) (CaZrO3);
      c. Cerium sulphide (Ce2S3);
      d. Erbium oxide (erbia) (Er2O3);
      e. Hafnium oxide (hafnia) (HfO2);
      f. Magnesium oxide (MgO);
      g. Nitrided niobium-titanium-tungsten alloy (approximately 50% Nb, 30% Ti, 20% W);
      h. Yttrium oxide (yttria) (Y2O3); or
      i. Zirconium oxide (zirconia) (ZrO2);
b. Crucibles having both of the following characteristics:
   1. A volume of between 50 cm3 (50 ml) and 2000 cm3 (2 litres); and
   2. Made of or lined with tantalum, having a purity of 99.9% or greater by weight;
c. Crucibles having all of the following characteristics:
   1. A volume of between 50 cm3 (50 ml) and 2000 cm3 (2 litres);
   2. Made of or lined with tantalum, having a purity of 98% or greater by weight; and
   3. Coated with tantalum carbide, nitride, boride, or any combination thereof.

4A009 Platinized catalysts specially designed or prepared for promoting the hydrogen isotope exchange reaction between hydrogen and water for the recovery of tritium from heavy water or for the production of heavy water.

4A010 Composite structures in the form of tubes having both of the following characteristics:

a. An inside diameter of between 75 and 400 mm; and
b. Made with any of the materials specified in Item 3A116.

4A011 Frequency changers or generators having all of the following characteristics:

a. Multiphase output capable of providing a power of 40 W or greater;
b. Capable of operating in the frequency range between 600 and 2000 Hz;
c. Total harmonic distortion better (less) than 10%; and
d. Frequency control better (less) than 0.1%.

Note: Frequency changers and generators especially designed or prepared for the gas centrifuge process are controlled under Prescribed Equipment (0B Category).

Technical Note: Frequency changers in Item 4A011 are also known as converters or inverters.

4A012 Lasers, laser amplifiers and oscillators as follows:

a. Copper vapour lasers having both of the following characteristics:
   1. Operating at wavelengths between 500 and 600 nm; and
   2. An average output power equal to or greater than 40 W;

b. Argon ion lasers having both of the following characteristics:
   1. Operating at wavelengths between 400 and 515 nm; and
   2. An average output power greater than 40 W;

c. Neodymium-doped (other than glass) lasers with an output wavelength between 1000 and 1100 nm having either of the following:
   1. Pulse-excited and Q-switched with a pulse duration equal to or greater than 1 ns, and having either of the following:
      a. A single-transverse mode output with an average output power greater than 40 W; or
      b. A multiple-transverse mode output with an average output power greater than 50 W;

      or
   2. Incorporating frequency doubling to give an output wavelength between 500 and 550 nm with an average output power of greater than 40 W;

d. Tuneable pulsed single-mode dye laser oscillators having all of the following characteristics:
   1. Operating at wavelengths between 300 and 800 nm;
   2. An average output power greater than 1 W;
   3. A repetition rate greater than 1 kHz; and
   4. Pulse width less than 100 ns;

e. Tuneable pulsed dye laser amplifiers and oscillators having all of the following characteristics:
   1. Operating at wavelengths between 300 and 800 nm;
   2. An average output power greater than 30 W;
   3. A repetition rate greater than 1 kHz; and
   4. Pulse width less than 100 ns;

   Note: Item 4A012e does not control single mode oscillators.

f. Alexandrite lasers having all of the following characteristics:
   1. Operating at wavelengths between 720 and 800 nm;
   2. A bandwidth of 0.005 nm or less;
   3. A repetition rate greater than 125 Hz; and
   4. An average output power greater than 30 W;

g. Pulsed carbon dioxide lasers having all of the following characteristics:
   1. Operating at wavelengths between 9000 and 11000 nm;
   2. A repetition rate greater than 250 Hz;
   3. An average output power greater than 500 W; and
   4. Pulse width of less than 200 ns;

   Note: Item 4A012g does not control the higher power (typically 1 to 5 1kW) industrial CO2 lasers used in applications such as cutting and welding, as these latter lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

h. Pulsed excimer lasers (XeF, XeCl, KrF) having all of the following characteristics:
   1. Operating at wavelengths between 240 and 360 nm;
   2. A repetition rate greater than 250 Hz; and
   3. An average output power greater than 500 W;

i. Para-hydrogen Raman shifters designed to operate at 16 µm output wavelength and at a repetition rate greater than 250 Hz.

4A013 Valves having all of the following characteristics:

a. A nominal size of 5 mm or greater;
b. Having a bellows seal; and
c. Wholly made of or lined with aluminium, aluminium alloy, nickel, or nickel alloy containing more than 60% nickel by weight.

Technical Note: For valves with different inlet and outlet diameter, the nominal size parameter in Item 4A013a refers to the smallest diameter.

4A014 Superconducting solenoidal electromagnets having all of the following characteristics:

a. Capable of creating magnetic fields greater than 2 T;
b. A ratio of length to inner diameter greater than 2;
c. Inner diameter greater than 300 mm; and
d. Magnetic field uniform to better than 1% over the central 50% of the inner volume.

Note: Item 4A014 does not control magnets specially designed for and exported as part of medical nuclear magnetic resonance (NMR) imaging systems. (‘As part of’ does not necessarily mean physical part in the same shipment. Separate shipments from different sources are allowed, provided the related export documents clearly specify the ‘as part of” relationship.)

4A015 High-power direct current power supplies having both of the following characteristics:

a. Capable of continuously producing, over a time period of 8 hours, 100 V or greater with current output of 500 A or greater; and
b. Current or voltage stability better than 0.1% over a time period of 8 hours.

4A016 High-voltage direct current power supplies having both of the following characteristics:

a. Capable of continuously producing, over a time period of 8 hours, 20 kV or greater with current output of 1 A or greater; and
b. Current or voltage stability better than 0.1% over a time period of 8 hours.

4A017 Pressure transducers capable of measuring absolute pressures at any point in the range 0 to 13 kPa and having both of the following characteristics:

a. Pressure sensing elements made of or protected by aluminium, aluminium alloy, nickel, or nickel alloy with more than 60% nickel by weight; and

b. Having either of the following characteristics:
   1. A full scale of less than 13 kPa and an accuracy of better than ± 1% of full scale; or
   2. A full scale of 13 kPa or greater and an accuracy of better than ± 130 Pa.

Technical Notes:

1. In Item 4A017 pressure transducers are devices that convert pressure measurements into an electrical signal.
2. In Item 4A017 accuracy includes non-linearity, hysteresis and repeatability at ambient temperature.

4A018 Vacuum pumps having all of the following characteristics:

a. Input throat size equal to or greater than 380 mm;
b. Pumping speed equal to or greater than 15 m3/s; and
c. Capable of producing an ultimate vacuum better than 13.3 mPa.

Technical Notes:

1. The pumping speed is determined at the measurement point with nitrogen gas or air.
2. The ultimate vacuum is determined at the input of the pump with the input of the pump blocked off.

4A019 Electrolytic cells for fluorine production with an output capacity greater than 250 g of fluorine per hour.

4A020 Rotor fabrication or assembly equipment, rotor straightening equipment, bellows-forming mandrels and dies, as follows:

a. Rotor assembly equipment for assembly of gas centrifuge rotor tube sections, baffles, and end caps;

Note: Item 4A020a includes precision mandrels, clamps, and shrink fit machines.

b. Rotor straightening equipment for alignment of gas centrifuge rotor tube sections to a common axis;

Technical Note: In Item 4A020b such equipment normally consists of precision measuring probes linked to a computer that subsequently controls the action of, for example, pneumatic rams used for aligning the rotor tube sections.

c. Bellows-forming mandrels and dies for producing single -convolution bellows.

Technical Note: The bellows referred to in Item 4A020c have all of the following characteristics:

1. Inside diameter between 75 and 400 mm;
2. Length equal to or greater than 12.7 mm;
3. Single convolution depth greater than 2 mm; and
4. Made of high-strength aluminium alloys, maraging steel, or high strength fibrous or filamentary materials.

4A021 Centrifugal multi-plane balancing machines, fixed or portable, horizontal or vertical, as follows:

a. Centrifugal balancing machines designed for balancing flexible rotors having a length of 600 mm or more and having all of the following characteristics:
   1. Swing or journal diameter greater than 75 mm;
   2. Mass capability of from 0.9 to 23 kg; and
   3. Capable of balancing speed of revolution greater than 5000 rpm;

b. Centrifugal balancing machines designed for balancing hollow cylindrical rotor components and having all of the following characteristics:
   1. Journal diameter greater than 75 mm;
   2. Mass capability of from 0.9 to 23 kg;
   3. Capable of balancing to a residual imbalance equal to or less than 0.010 kg x mm/kg per plane; and
   4. Belt drive type.

4A022 Filament winding machines and related equipment, as follows:

a. Filament winding machines as specified in 5A206.

b. Coordinating and programming controls for the filament winding machines specified in Item 4A022a;

c. Precision mandrels for the filament winding machines specified in Item 4A022a.

4A023 Electromagnetic isotope separators designed for, or equipped with, single or multiple ion sources capable of providing a total ion beam current of 50 mA or greater.

Notes:
1. Item 4A023 includes separators capable of enriching stable isotopes as well as those for uranium.
2. A separator capable of separating the isotopes of lead with a one-mass unit difference is inherently capable of enriching the isotopes of uranium with a three-unit mass difference.
3. Item 4A023 includes separators with the ion sources and collectors both in the magnetic field and those configurations in which they are external to the field.

Technical Note: A single 50 mA ion source cannot produce more than 3 g of separated highly enriched uranium (HEU) per year from natural abundance feed.

4A024 Mass spectrometers capable of measuring ions of 230 atomic mass units or greater and having a resolution of better than 2 parts in 230, as follows, and ion sources therefor:

a. Inductively coupled plasma mass spectrometers (ICP/MS);
b. Glow discharge mass spectrometers (GDMS);
c. Thermal ionisation mass spectrometers (TIMS);
d. Electron bombardment mass spectrometers which have a source chamber constructed from, lined with or plated with materials resistant to UF6;
e. Molecular beam mass spectrometers having either of the following characteristics:

    1. A source chamber constructed from, lined with or plated with stainless steel or molybdenum, and equipped with a cold trap capable of cooling to 193 K (-80 °C) or less; or
    2. A source chamber constructed from, lined with or plated with materials resistant to UF6;

f. Mass spectrometers equipped with a micro-fluorination ion source designed for actinides or actinide fluorides.

Note: Mass spectrometers especially designed or prepared for analyzing on-line samples of uranium hexafluoride are controlled under Prescribed Equipment (0B Category).

4A025 Specialized packings which may be used in separating heavy water from ordinary water, having both of the following characteristics:
a. Made of phosphor bronze mesh chemically treated to improve wettability; and
b. Designed to be used in vacuum distillation towers.

4A026 Pumps capable of circulating solutions of concentrated or dilute potassium amide catalyst in liquid ammonia (KNH2/NH3), having all of the following characteristics:

a. Airtight (i.e., hermetically sealed);
b. A capacity greater than 8.5 m3/h; and
c. Either of the following characteristics:
    1. For concentrated potassium amide solutions (1% or greater), an operating pressure of 1.5 to 60 MPa; or
    2. For dilute potassium amide solutions (less than 1%), an operating pressure of 20 to 60 MPa.

4A027 Turbo-expanders or turbo-expander-compressor sets having both of the following characteristics:

a. Designed for operation with an outlet temperature of 35 K (- 238 ºC) or less; and
b. Designed for a throughput of hydrogen gas of 1000 kg/h or greater.

4A028 Water-hydrogen sulphide exchange tray columns and internal contactors, as follows:

a. Water-hydrogen sulphide exchange tray columns, having all of the following characteristics:
    1. Can operate at pressures of 2 MPa or greater;
    2. Constructed of carbon steel having an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; and
    3. With a diameter of 1.8 m or greater;

b. Internal contactors for the water-hydrogen sulphide exchange tray columns specified in Item 4A028a.

Note: For columns which are especially designed or prepared for the production of heavy water, see Prescribed Equipment (0B002).

Technical Note: Internal contactors of the columns are segmented trays which have an effective assembled diameter of 1.8 m or greater; are designed to facilitate counter current contacting and are constructed of stainless steels with a carbon content of 0.03% or less. These may be sieve trays, valve trays, bubble cap trays or turbo grid trays.

4A029 Hydrogen-cryogenic distillation columns having all of the following characteristics:
a. Designed for operation at internal temperatures of 35 K (-238 ºC) or less;
b. Designed for operation at internal pressures of 0.5 to 5 MPa;
c. Constructed of either:
    1. Stainless steel of the 300 series with low sulphur content and with an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; or
    2. Equivalent materials which are both cryogenic and H2-compatible; and
d. With internal diameters of 1 m or greater and effective lengths of 5 m or greater.

4A030 Ammonia synthesis converters or synthesis units, in which the synthesis gas (nitrogen and hydrogen) is withdrawn from an ammonia/hydrogen high-pressure exchange column and the synthesized ammonia is returned to said column.

4B Equipment, assemblies and components, including test and measurement equipment usable in development of nuclear explosive devices

4B001 Photomultiplier tubes having both of the following characteristics:

a. Photocathode area of greater than 20 cm^2; and
b. Anode pulse rise time of less than 1 ns.

4B002 Flash X-ray generators or pulsed electron accelerators having either of the following sets of characteristics:

a. An accelerator peak electron energy of 500 keV or greater but less than 25 MeV; and
b. With a figure of merit (K) of 0.25 or greater;

or

a. An accelerator peak electron energy of 25 MeV or greater; and
b. A peak power greater than 50 MW.

Note: Item 4B002 does not control accelerators that are component parts of devices designed for purposes other than electron beam or X-ray radiation (electron microscopy, for example) nor those designed for medical purposes.

Technical Notes:

1. The figure of merit K is defined as: $K=1.7 \times 10^3 V^{2.65}Q$. V is the peak electron energy in million electron volts. If the accelerator beam pulse duration is less than or equal to 1 µs, then Q is the total accelerated charge in Coulombs. If the accelerator beam pulse duration is greater than 1 µs, then Q is the maximum accelerated charge in 1 µs. Q equals the integral of i with respect to t, over the lesser of 1 µs or the time duration of the beam pulse ($Q=\int idt$) where i is beam current in amperes and t is the time in seconds.
2. Peak power = (peak potential in volts) x (peak beam current in amperes).
3. In machines based on microwave accelerating cavities, the time duration of the beam pulse is the lesser of 1 µs or the duration of the bunched beam packet resulting from one microwave modulator pulse.
4. In machines based on microwave accelerating cavities, the peak beam current is the average current in the time duration of a bunched beam packet.

4B003 Multistage light gas guns or other high-velocity gun systems (coil, electromagnetic, and electrothermal types, and other advanced systems) capable of accelerating projectiles to 2 km/s or greater.

4B004 Mechanical rotating mirror cameras, as follows, and specially designed components therefor:

a. Framing cameras with recording rates greater than 225000 frames per second;
b. Streak cameras with writing speeds greater than 0.5 mm/µs.

Note: In Item 4B004 components of such cameras include their synchronizing electronics units and rotor assemblies consisting of turbines, mirrors, and bearings.

4B005 Electronic streak cameras, electronic framing cameras, tubes and devices, as follows:

a. Electronic streak cameras capable of 50 ns or less time resolution;
b. Streak tubes for cameras specified in Item 4B005a;
c. Electronic (or electronically shuttered) framing cameras capable of 50 ns or less frame exposure time;
d. Framing tubes and solid-state imaging devices for use with cameras specified in Item 4B005c, as follows:
    1. Proximity focused image intensifier tubes having the photocathode deposited on a transparent conductive coating to decrease photocathode sheet resistance;
    2. Gate silicon intensifier target (SIT) vidicon tubes, where a fast system allows gating the photoelectrons from the photocathode before they impinge on the SIT plate;
    3. Kerr or Pockels cell electro-optical shuttering;
    4. Other framing tubes and solid-state imaging devices having a fast image gating time of less than 50 ns specially designed for cameras specified in Item 4B005c.

4B006 Specialized instrumentation for hydrodynamic experiments, as follows:

a. Velocity interferometers for measuring velocities exceeding 1 km/s during time intervals of less than 10 μs;
b. Manganin gauges for pressures greater than 10 GPa;
c. Quartz pressure transducers for pressures greater than 10 GPa.

Note: Item 4B006a includes velocity interferometers such as VISARs (Velocity interferometer systems for any reflector) and DLIs (Doppler laser interferometers).

4B007 High-speed pulse generators having both of the following characteristics:

a. Output voltage greater than 6 V into a resistive load of less than 55 ohms; and
b. 'Pulse transition time' less than 500 ps.

Technical Note: In Item 4B007b 'pulse transition time' is defined as the time interval between 10% and 90% voltage amplitude.

4B008 Detonators and multipoint initiation systems, as follows:

a. Electrically driven explosive detonators, as follows:
    1. Exploding bridge (EB);
    2. Exploding bridge wire (EBW);
    3. Slapper;
    4. Exploding foil initiators (EFI);

b. Arrangements using single or multiple detonators designed to nearly simultaneously initiate an explosive surface over an area greater than 5000 mm2 from a single firing signal with an initiation timing spread over the surface of less than 2.5 μs.

Note: Item 4B008 does not control detonators using only primary explosives, such as lead azide.

Technical Note: In Item 4B008 the detonators of concern all utilize a small electrical conductor (bridge, bridge wire, or foil) that explosively vaporizes when a fast, high-current electrical pulse is passed through it. In nonslapper types, the exploding conductor starts a chemical detonation in a contacting high-explosive material such as PETN (pentaerythritoltetranitrate). In slapper detonators, the explosive vaporization of the electrical conductor drives a flyer or slapper across a gap, and the impact of the slapper on an explosive starts a chemical detonation. The slapper in some designs is driven by magnetic force. The term exploding foil detonator may refer to either an EB or a slapper-type detonator. Also, the word initiator is sometimes used in place of the word detonator.

4B009 Firing sets and equivalent high-current pulse generators, as follows:

a. Explosive detonator firing sets designed to drive multiple controlled detonators specified by Item 4B008 above;

b. Modular electrical pulse generators (pulsers) having all of the following characteristics:
   1. Designed for portable, mobile, or ruggedized-use;
   2. Enclosed in a dust-tight enclosure;
   3. Capable of delivering their energy in less than 15 μs;
   4. Having an output greater than 100 A;
   5. Having a 'rise time' of less than 10 μs into loads of less than 40 ohms;
   6. No dimension greater than 25.4 cm;
   7. Weight less than 25 kg ; and
   8. Specified to operate over an extended temperature range of 223º to 373º K (-50 ºC to 100 ºC) or specified as suitable for aerospace applications.

Note: Item 4B009b includes xenon flashlamp drivers.

Technical Note: In Item 4B009b5 'rise time' is defined as the time interval from 10% to 90% current amplitude when driving a resistive load.

4B010 Switching devices as follows:

a. Cold-cathode tubes, whether gas filled or not, operating similarly to a spark gap, having all of the following characteristics:
   1. Containing three or more electrodes;
   2. Anode peak voltage rating of 2.5 kV or more;
   3. Anode peak current rating of 100 A or more; and
   4. Anode delay time of 10 μs or less;

Note: Item 4B010a includes gas krytron tubes and vacuum sprytron tubes.

b. Triggered spark-gaps having both of the following characteristics:
   1. Anode delay time of 15 µs or less; and
   2. Rated for a peak current of 500 A or more;

c. Modules or assemblies with a fast switching function having all of the following characteristics:
   1. Anode peak voltage rating greater than 2 kV;
   2. Anode peak current rating of 500 A or more; and
   3. Turn-on time of 1 µs or less.

4B011 Pulse discharge capacitors having either of the following sets of characteristics:

a. 1. Voltage rating greater than 1.4 kV;
   2. Energy storage greater than 10 J;
   3. Capacitance greater than 0.5 µF; and
   4. Series inductance less than 50 nH;

or

b. 1. Voltage rating greater than 750 V;
   2. Capacitance greater than 0.25 µF; and
   3. Series inductance less than 10 nH.

4B012 Neutron generator systems, including tubes, having both of the following characteristics:

a. Designed for operation without an external vacuum system; and

b. Utilizing electrostatic acceleration to induce a tritium-deuterium nuclear reaction.

4C Technology

Technology for the development, production or use of items in 4A and 4B.

5 Aerospace systems, equipment including production and test equipment, related technology, and specially designed components and accessories therefor

5A Rocket Systems (including ballistic missiles, space launch vehicles and sounding rockets)

5A1 Systems

5A101 Systems for missiles and rockets, including:

a. complete rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets);
b. complete rocket stages with engines;
c. solid or liquid fuel rocket engines and their control systems including liquid propellant apogee engines designed or modified for satellites.

Note: 5A101 does not control JATO units, propulsion units for flares, ejection seats, emergency escape equipment and rockets for display fireworks.

5A102 Subsystems and components usable in missiles and rockets including:

a. rocket motor cases, interior lining, insulation and nozzles;
b. rocket staging mechanisms, separation mechanisms and inter-stages;
c. liquid and slurry propellant (including oxidizers), control systems, and components thereof, specially designed or modified for resistance to vibration;
d. re-entry vehicles and equipment including
    1. Heat-shields and components thereof, fabricated of ceramic or ablative materials;
    2. Heat sinks and components thereof, fabricated of light weight, high heat capacity materials;
    3. Electronic equipment specially designed for re-entry vehicles.
e. guidance systems and their components such as gyros and inertial reference units;
f. thrust-vector control subsystems including methods of achieving thrust vector control such as flexible nozzle, fluid or secondary gas injection, movable engine or nozzle, deflection of exhaust gas stream (jet vanes or probes) and use of thrust tabs;
g. hybrid rocket motors and components thereof;
h. safing, arming, fusing and firing mechanisms for weapons or warhead;
i. software specially designed for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures.

5A2 Production and Test Equipment

5A201 Transonic, supersonic, hypersonic wind tunnels; shock tunnels; gun tunnels; aeroballistic ranges.

5A202 Test and production equipment and facilities designed to handle systems in 5A1.

5A203 Test benches/stands, usable for complete rocket systems and subsystems (including ballistic missile systems, space launch vehicles and sounding rockets) which have the capacity to handle solid or liquid propellant rockets, motors or engines, or which are capable of simultaneously measuring the three axial thrust components.

5A204 Vibration test equipment (vibration test systems and vibration thrusters) and components using digital control techniques and feedback or closed loop test equipment and software thereof (Refer 4A006).

5A205 Flow-forming machines and specially designed components thereof which, according to the manufacturers technical specification,

1. can be equipped with numerical control units or a computer control, even when not equipped with such units at delivery; and
2. have more than two axes which can be coordinated simultaneously for contouring control.

Note: Item 5A205 includes machines which have only a single roller designed to deform metal plus two auxiliary rollers which support the mandrel, but do not participate directly in the deformation process.

5A206 Filament winding machines or fibre placement machines for which the motion for positioning wrapping and winding fibres can be coordinated and programmed in two or more axes; precision mandrels thereof, and coordinating and programming controls.

5A207 Tape-laying machines of which the motions for positioning and laying tape and sheets can be coordinated and programmed in two or more axes;

5A208 Isostatic presses having all of the characteristics of maximum working pressure equal to or greater than 69 MPa or greater; designed to achieve and maintain a controlled thermal environment of 600^{o}C or greater; and possessing a chamber cavity with an inside diameter of 152 mm or greater.

5A209 Environmental chambers simulating vibration environments, with altitudes equal to or greater than 15 km, or temperature ranging between minus 50 and plus 125 degrees centigrade.

5A210 Environmental chambers simulating acoustic pressure level of 140 dB or greater or rated acoustic power output of 4 KW or greater, with altitudes equal to or greater than 15 km, or temperature ranging between minus 50 and plus 125 degrees centigrade.

5A211 Accelerators delivering electro-magnetic radiation produced by Bremsstrahlung from accelerated electrons.

5A212 Pulsed electron accelerators

5A213 Radial ball bearings having all tolerances specified in accordance with ISO 492 Tolerance Class 2 or better and having all the following characteristics:

a. An inner ring bore diameter between 12 and 50 mm;
b. An outer ring outside diameter between 25 and 100 mm; and
c. A width between 10 and 20 mm.

5A214 Liquid propellant tanks specially designed for the propellants controlled in Item 3A3 or other liquid propellants used in the systems specified in 5A and 5B.

5A215 Production facilities and production equipment specially designed for equipment or materials for 5A101 and 5A102.

5A216 Production equipment and specially designed components thereof, for the production, handling or acceptance testing of liquid propellants or propellant constituents as referred in 3A3;

5A217 Launch and ground support equipment and facilities usable for rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets), unmanned airborne system and cruise missiles as follows:-

a. apparatus, devices and vehicles, designed or modified for the transport, handling, control, activation and launching of the systems.

b. gravity meters (gravimeters), gravity gradiometers, and specially designed components thereof, designed or modified for airborne or marine use usable for complete rocket systems and for complete unmanned aerial vehicle systems (including cruise missile systems target drones and reconnaissance drones)

c. telemetry and tele-command equipment, including ground equipment, designed or modified for complete rocket systems and complete unmanned aerial vehicle systems and cruise missiles, excluding equipment designed or modified for manned aircraft or satellites, ground based equipment designed or modified for terrestrial or marine application, and equipment designed for commercial, civil or 'safety of life' (e.g. data integrity, flight safety) GNSS services.

d. radomes designed to withstand a combined thermal and pressure shock usable in protecting rocket systems, unmanned aerial vehicles and cruise missiles against nuclear effects (eg. electro-magnetic pulse (EMP), X-rays, combined blast and thermal effects).

e. Software which processes post-flight, recorded data, enabling determination of vehicle position throughout its flight path.

f. Thermal batteries designed or modified for complete rocket systems of 5A or complete unmanned aerial vehicles of 5B

Note: 'Thermal batteries' are single use batteries that contain a solid non-conducting inorganic salt as the electrolyte. These batteries incorporate a pyrolytic material that, when ignited, melts the electrolyte and activates the battery.

5A218 Systems, specially designed for radar cross section measurement, usable for rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets), unmanned airborne system and cruise missiles and their subsystems.

5A3 Technology

5A301 Technology related to the development, production, testing and use of items in 5A1 and 5A2.

5A302 Software for the development, production, and testing and use of items in 5A1 and 5A2.

5A303 Software which coordinates the function of more than one subsystem, specially designed or modified for use in the systems specified in 5A1 and 5A2.

5B **Unmanned aerial vehicles including cruise missiles, target drones and reconnaissance drones and related equipment, and specially designed components therefor:**

a. Unmanned aerial vehicles including Remotely Piloted air Vehicles (RPVs) and autonomous programmable vehicles;
b. Associated launchers and ground support equipment;
c. Related equipment for command and control;
d. Complete unmanned aerial vehicle systems (including cruise missile systems, target drones and reconnaissance drones);
e. Light weight Turbojet and turbofan engines (including turbo compound engines);**.**
f. Ramjet / Scramjet / pulse jet/ combined cycle engines, including devices to regulate combustion, and specially designed components;
g. Complete unmanned aerial vehicle systems having an autonomous flight control and navigation capability or capability of controlled flight out of the direct vision range involving a human operator, designed or modified to incorporate an aerosol dispensation mechanism, or capable of carrying elements of a payload in the form of a particulate or liquid other than fuel components of such vehicles;
Note: This category does not control unpowered airborne vehicles such as gliders, hot air balloons etc.;
h. Safing, arming, fusing and firing mechanisms for weapons or warhead;
i Production facilities and Production equipment specially designed for equipment or materials for 5;**.**
j. Technology, for the development, production or use of equipment, materials or software specified for 5B;
k. Software, for the development, production or use of equipment or materials specified for 5B;
l. Software which coordinates the function of more than one subsystem, specially designed or modified for use in the systems specified in 5B;

m**.** 'Turboprop engine systems' specially designed for the systems in 5B.d, and specially designed components therefor, having a maximum power greater than 10 kW (achieved uninstalled at sea level standard conditions), excluding civil certified engines.

Note: For the purposes of this entry, a 'turboprop engine system' incorporates all of the following:
i. Turboshaft engine; and
ii. Power transmission system to transfer the power to a propeller.

5C **Avionics and navigation systems designed or modified for use in, or usable in rocket systems (including ballistic missile systems, space launch vehicles and sounding rockets), unmanned aerial vehicles and cruise missiles**

5C001 Guidance systems and their components such as gyros and inertial reference units, and specially designed components therefor;

5C002 Integrated flight instrument systems which include gyrostabilizers or automatic pilots, and specially designed components therefor;

5C003 Compasses (including gyro-astro compasses), gyroscopes, accelerometers and inertial equipment and specially designed software thereof and specially designed components therefor.

5C004 Inertial or other equipment using accelerometers or systems incorporating such equipment, and specially designed integration software therefor;

5C005 Encrypted telemetry systems, equipment and software thereof.

5C006 Flight control system (including servo valves) designed or modified for the systems as follows:

a. Hydraulic, mechanical, electro-optical or electro-mechanical flight control systems (including fly-by-wire systems);
b. Attitude control equipment;
c. Design technology for integration of flight control, guidance, and propulsion data into a flight management system for optimisation of rocket system trajectory;
d. Specially designed test, calibration, and alignment thereof.

5C007 1. Integrated navigation system incorporating an inertial measurement device (example: an attitude and heading reference system, inertial reference unit, or inertial navigation system); one or more external sensor used to update the position and/or velocity, either periodically or continuously throughout the flight (example: satellite navigation receiver, radar altimeter and/or Doppler radar); integration hardware and software.

2. Three axis magnetic heading sensors having all of the following characteristics, and specially designed components therefor:

a. Internal tilt compensation in pitch (+/- 90 degrees) and having roll (+/- 180 degrees) axes.
b. Capable of providing azimuthal accuracy better (less) than 0.5 degrees rms at latitudes of +/- 80 degrees, referenced to local magnetic field; and
c. Designed or modified to be integrated with flight control and navigation systems.

Note: Flight control and navigation systems in this item include gyrostabilizers, automatic pilots and inertial navigation systems.

5C008 Production equipment and other test, calibration and alignment equipment, designed or modified to be used with equipment specified in 5C001 – 5C004 and 5C007.

5C009 Equipment used to characterize mirrors for laser gyros such as scatterometer, reflectometer and profilometer and for other inertial equipments such as Inertial measurement unit (IMU Module) tester, IMU Platform tester, IMU stable element handling fixture, Gyro tuning test station, Gyro dynamic balance station, Gyro run-in/motor test station, Gyro evacuation and filling station, Centrifuge fixture for gyro bearings, Accelerometer axis align station and Accelerometer test station.

5C010 Avionics equipment and embedded or specially designed software and components thereof, including but not limited to:

a. Radar and laser radar system including altimeter;
b. Electronic assemblies and components including umbilical and interstage electrical connectors
   Technical Note: Interstage connectors also include electrical connectors installed between systems and their payload.
c. Design technology for protection of avionics and electrical subsystems against electromagnetic pulse (EMP) and electromagnetic interference (EMI) hazards from external sources.
d. Passive sensors for determining bearings to electromagnetic sources (direction finding devices) or terrain characteristics
e. Receiving equipment for Global Navigation Satellite Systems (GNSS: e.g. GPS, GLONASS, GALILEO), capable of operating at aircraft speeds and altitudes or above.
f. Terrain contour mapping equipment, Scene mapping and correlation (both digital and analogue) equipment, Doppler navigation radar equipment, Passive interferometer equipment and Imaging sensor equipment (both active and passive)
g. Design technology for electromagnetic shielding systems, the configuration of hardened electrical circuits and subsystems and for the determination of hardening criteria.

5C011 On-board electronic equipment, devices and their design and manufacturing know-how (except warhead fuses, timers and sequencers), and embedded or specially designed software thereof.

5C012 Detectors designed or modified, in protecting rocket systems, unmanned aerial vehicles and cruise missiles against nuclear effects (eg. electro-magnetic pulse (EMP), X-rays, combined blast and thermal effects).

5C013 Radiation Hardened microcircuits usable in protecting rocket systems, unmanned aerial vehicles and cruise missiles against nuclear effects (e.g. electro-magnetic pulse (EMP), X-rays, combined blast and thermal effects).

5C014 Precision tracking systems using a code translator installed on the rocket or unmanned aerial vehicle in conjunction with either surface or airborne references or navigation satellite systems to provide real-time measurement of inflight position and velocity; Range instrumentation radars including associated optical/infrared trackers and related software.

5C015 Balancing machines capable of balancing rotors/assemblies and correcting unbalance in two planes or more.

5C016 Indicator heads or balancing instrumentation designed or modified for use with balancing machines.

5C017 Motion simulators or rate tables having all of the following characteristics:

a. Two axes or more;

b. Designed or modified to incorporate slip rings or integrated non-contact devices capable of transferring electrical power, signal information, or both; and

c. Having any of the following characteristics:

1. For any single axis having all of the following:

a. Capable of rates of 400 degrees/s or more, or 30 degrees/s or less; and

b. A rate resolution equal to or less than 6 degrees/s and an accuracy equal to or less than 0.6 degrees/s;

2. Having a worst-case rate stability equal to or better (less) than plus or minus 0.05 % averaged over 10 degrees or more; or

3. A positioning 'accuracy' equal to or less (better) than 5 arc second.

Note 1: 5C017 does not control rotary tables designed or modified for machine tools or for medical equipment.
Note 2: Motion simulators or rate tables specified in 5C017 remain controlled whether or not slip rings or integrated non-contact devices are fitted at time of export.

5C018 Position tables (equipment capable of precise rotary positioning in any axes) having two axes or more and a position accuracy equal to or better than 5 arc second.

5C019 Centrifuges capable of imparting accelerations above 100 g and designed or modified to incorporate slip rings or integrated non-contact devices capable of transferring electrical power, signal information, or both.
Note: Centrifuges specified in 5C019 remain controlled whether or not slip rings or integrated non-contact devices are fitted at time of export.

5C020 Design technology for integration of air vehicle fuselage, propulsion system and lifting control surfaces designed or modified for the unmanned aerial vehicle systems to optimize aerodynamic performance throughout the flight regime of an unmanned aerial vehicle system.

5C021 Design technology for integration of the flight control, guidance, and propulsion data into a flight management system, designed or modified for the complete rocket systems, unmanned aerial vehicles and cruise missiles for optimization of the trajectory.

5C022 Technology for the development, production, or use of items in 5C.

5C023 Software for the development, production and use of items in 5C.

5C024 Software specially designed or modified for use in the systems specified in 5C.

5D **Manned-aircraft, aero-engines, related equipment and components:**

Note: This category does not control foreign military aircraft or an Indian aircraft carrying a military registration number.

5D001 Combat aircraft and specially designed components thereof;

a. Other aircraft specially designed or modified for military use, including military reconnaissance, assault, military training, transporting and air-dropping troops or military equipment, logistics support, and specially designed components thereof;
b. Aero-engines specially designed or modified for military use, and specially designed components thereof;
c. Airborne equipment, including airborne refuelling equipment, specially designed for use with the aircraft controlled by 5D001a or 5D001b or the aero-engines controlled by 5D001c, and specially designed components thereof;
d. Pressure refuellers, pressure refuelling equipment, equipment specially designed to facilitate operations in confined areas and ground equipment, developed specially for aircraft controlled by 5D001a or 5D001b or for aero-engines controlled by 5D001c;
e. Pressurized breathing equipment and partial pressure suits for use in aircraft anti-g suits, military crash helmets and protective masks, liquid oxygen converters used for aircraft or missiles, and catapults and cartridge actuated devices for emergency escape of personnel from aircraft;
f. Parachutes:
    1. Paragliders, drag parachutes, drogue parachutes for stabilization and attitude control of dropping bodies, (e.g. recovery capsules, ejection seats, bombs);
    2. Drogue parachutes for use with ejection seat systems for deployment and inflation sequence regulation of emergency parachutes;
    3. Recovery parachutes for guided missiles, drones or space vehicles;
    4. Approach parachutes and landing deceleration parachutes.
g. Automatic piloting systems for parachuted loads, equipment specially designed or modified for military use for controlled opening jumps at any height, including oxygen equipment.

Note 1: 5D001b does not control aircraft or variants of those aircraft specially designed for military use which:

1. Have been certified for civil use by the civil aviation authority of India, and
2. Are not configured for military use and are not fitted with equipment or attachments specially designed or modified for military use;

Note 2: The control in 5D001b and 5D001c on specially designed components and related equipment for non-military aircraft or aero-engines modified for military use applies only to those military components and to military related equipment required for the modification to military use.

5E Microlight aircraft and powered 'hang-gliders'

Category 6 [Reserved]

Category 7: Electronics, computers, and information technology including information security

7A Electronics

7A001 High-power microwave devices including tubes, travelling wave tubes (TWT) and phase shifters, and continuous wave and pulsed high power microwave travelling wave tube amplifiers (TWTA) operating at frequencies higher than 31 GHz, and their power supplies.

7A002 Microwave monolithic integrated circuits (MMIC) operating at frequencies above 3 GHz and surface acoustic wave (SAW) devices operating at frequencies above 2.5 GHz.

7A003 Phased array antennas and their elements.

7A004 Radiation-hardened microprocessors, field programmable gate arrays and solid state memory devices.

7A005 Microprocessor microcircuits, microcomputer microcircuits, microcontroller microcircuits, storage integrated circuits manufactured from a compound semiconductor, analogue-to-digital converter, and digital-to-analogue converter, printed circuit boards or modules, electro-optical or optical integrated circuits designed for signal processing, field programmable logic devices, neural network integrated circuits, custom integrated circuits for which either the function is unknown or the control status of the equipment in which the integrated circuit will be used is unknown, Fast Fourier Transform (FFT) processors, electrical erasable programmable read-only memories (EEPROMs), flash memories or static random-access memories (SRAMs), having any of the following:

a. Rated for operation at an ambient temperature above 398 K (+125°C);
b. Rated for operation at an ambient temperature below 218 K (-55°C); or
c. Rated for operation over the entire ambient temperature range from 218 K (-55°C) to 398 K (+125°C).

7A006 Radiation-hardened analogue-to-digital and digital-to-analogue converter integrated circuits, as follows:

a. Analogue-to-digital converters having any of the following:
   1. A resolution of 8 bit or more, but less than 12 bit, with a total conversion time of less than 5 ns;
   2. A resolution of 12 bit with a total conversion time of less than 200 ns; or
   3. A resolution of more than 12 bit with a total conversion time of less than 2 µs;
b. Digital-to-analogue converters with a resolution of 12 bit or more, and a settling time of less than 10 ns.

7A007 Detector units operating in the thermal infrared, ultraviolet, x-ray and gamma ray spectrum.

7A008 Focal plane assemblies for imaging cameras operating in the visible, near and thermal infrared spectrum.

7A009 Technology for the development, production or use of items specified in 7A005 and 7A006.

7B Electronic test equipment

7B001 Frequency synthesized signal generators with maximum frequency greater than 31 GHz.

7B002 Network analysers operating at frequencies above 40 GHz.

7C Computers

7C001 Digital computers and software as follows:

a. Digital computers having a composite theoretical performance (CTP) exceeding 75000 (seventy-five thousand) million theoretical operations per second (Mtops)
b. Software, and/or computer inter-connection schemes, whether or not co-supplied with (a) designed to 'parallelise' digital computers (individually of any CTP rating) enabling a CTP of more than 75000 Mtops to be achieved by the 'parallelised' configuration.

Technical notes:
1. The Composite Theoretical Performance (CTP) rating is to be calculated in accordance with the calculation scheme separately notified in this regard.
2. Individual digital computers each with a CTP rating of 75000 Mtops or less do not require an export license to any destination or end-user, unless supplied with (b) above.
3. Digital Computers' includes (1) hybrid computers incorporating 'digital computers' or specified in (a) above, systolic array computers, neural computers, optical computers, vector processors, digital signal processors, logical processors (2) digital electronic equipment designed for 'image enhancement' or signal processing other than when supplied as integral adjuncts to medical imaging (eg CAT-scanning) equipment.

7C002 Analogue, digital or hybrid computers, digital differential analysers, and specially designed software therefor, for use in, or for modelling, simulation, or design integration of rocket systems, unmanned aerial vehicles and cruise missiles.

7C003 Technology for the development, production or use of items in 7C002.

7D Information technology including information security

7D001 Data processing security equipment, data security equipment and transmission and signalling line security equipment, using ciphering processes.

7D002 Identification, authentication and keyloader equipment and key management, manufacturing and distribution equipment.

7E [Reserved]

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MINISTRY OF COMMERCE AND INDUSTRY
DEPARTMENT OF COMMERCE

NOTIFICATION No. 26 (RE-2013)/2009-2014
New Delhi, Dated : 3rd July, 2013

S.O. (E) In exercise of powers conferred by Section 5 and Section 14 A of the Foreign Trade (Development & Regulation) Act, 1992 {FT(D&R) Act,1992} as amended in 2010, the Central Government hereby makes amendment to the list of specified goods, services and technologies, i.e. Special Chemicals, Organisms, Materials Equipment and Technologies (SCOMET) that was notified vide Notification No.37 (RE-2012) /2009-2014 dated 14th March, 2013.

2. The existing entry in SCOMET Category 3D001 is substituted with the following :

3D001 (1) Reaction Vessels , Reactors or Agitators

(i) Reaction vessels or reactors, with or without agitators, with total internal (geometric) volume greater than 0.1 m^3 (100 l) and less than 20 m^3 (20000 l), where all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. tantalum or tantalum alloys;
f. titanium or titanium alloys;
g. zirconium or zirconium alloys; or
h. niobium (columbium) or niobium alloys.

(ii) Agitators for use in the above-mentioned reaction vessels or reactors; and impellers, blades or shafts designed for such agitators where all surfaces of the agitator that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. tantalum or tantalum alloys;
f. titanium or titanium alloys;
g. zirconium or zirconium alloys; or
h. niobium (columbium) or niobium alloys.

(2) Storage Tanks, Containers or Receivers

Storage tanks, containers or receivers with a total internal (geometric) volume greater than 0.1 m^3 (100 l) where all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. tantalum or tantalum alloys;
f. titanium or titanium alloys;
g. zirconium or zirconium alloys; or
h. niobium (columbium) or niobium alloys.

(3) Heat Exchangers or Condensers

Heat exchangers or condensers with a heat transfer surface area of greater than 0.15 m^2, and less than 20 m^2; and tubes, plates, coils or blocks (cores) designed for such heat exchangers or condensers, where all surfaces that come in direct contact with the chemical(s) being processed are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. graphite or carbon-graphite;
f. tantalum or tantalum alloys;
g. titanium or titanium alloys;
h. zirconium or zirconium alloys;
i. silicon carbide;
j. titanium carbide; or
k. niobium (columbium) or niobium alloys.

Technical note: carbon-graphite is a composition consisting of amorphous carbon and graphite, in which the graphite content is eight percent or more by weight.

(4) Distillation or Absorption Columns

Distillation or absorption columns of internal diameter greater than 0.1 m; and liquid distributors, vapour distributors or liquid collectors designed for such distillation or absorption columns, where all surfaces that come in direct contact with the chemical(s) being processed are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. graphite or carbon-graphite;
f. tantalum or tantalum alloys;

g. titanium or titanium alloys;
h. zirconium or zirconium alloys; or
i. niobium (columbium) or niobium alloys.

Technical note: carbon-graphite is a composition consisting of amorphous carbon and graphite, in which the graphite content is eight percent or more by weight.

(5) Filling Equipment

Remotely operated filling equipment in which all surfaces that come in direct contact with the chemical(s) being processed are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight; or
b. alloys with more than 25% nickel and 20% chromium by weight.

(6) Valves

Valves with nominal sizes greater than 1.0 cm (3/8") and casings (valve bodies) or preformed casing liners designed for such valves, in which all surfaces that come in direct contact with the chemical(s) being produced, processed, or contained are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. tantalum or tantalum alloys;
f. titanium or titanium alloys;
g. zirconium or zirconium alloys;
h . niobium (columbium) or niobium alloys; or
i. ceramic materials as follows:
    1. silicon carbide with a purity of 80% or more by weight;
    2. aluminum oxide (alumina) with a purity of 99.9% or more by weight;
    3. zirconium oxide (zirconia).

Technical note: The 'nominal size' is defined as the smaller of the inlet and outlet port diameters.

(7) Multi-Walled Piping

Multi-walled piping incorporating a leak detection port, in which all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. graphite or carbon-graphite;
f. tantalum or tantalum alloys;
g. titanium or titanium alloys;
h. zirconium or zirconium alloys; or

i. niobium (columbium) or niobium alloys.

Technical note: carbon-graphite is a composition consisting of amorphous carbon and graphite, in which the graphite-content is eight percent or more by weight.

(8) Pumps

Multiple-seal and seal-less pumps with manufacturer's specified maximum flow-rate greater than 0.6 m3/h, or vacuum pumps with manufacturer's specified maximum flow-rate greater than 5 m^3/h (under standard temperature (273 K (0o C)) and pressure (101.3 kPa) conditions), and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemical(s) being processed are made from any of the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight;
c. fluoropolymers (polymeric or elastomeric materials with more than 35% fluorine by weight);
d. glass or glass-lined (including vitrified or enamelled coating);
e. graphite or carbon-graphite;
f. tantalum or tantalum alloys;
g. titanium or titanium alloys;
h. zirconium or zirconium alloys;
i. ceramics;
j. ferrosilicon (high silicon iron alloys); or
k. niobium (columbium) or niobium alloys.

Technical note: carbon-graphite is a composition consisting of amorphous carbon and graphite, in which the graphite content is eight percent or more by weight.

(9) Incinerators

Incinerators designed to destroy CW agents, AG-controlled precursors or chemical munitions, having specially designed waste supply systems, special handling facilities, and an average combustion chamber temperature greater than 1000o C, in which all surfaces in the waste supply system that come into direct contact with the waste products are made from or lined with the following materials:

a. nickel or alloys with more than 40% nickel by weight;
b. alloys with more than 25% nickel and 20% chromium by weight; or
c. ceramics.

Technical note: For the listed materials in the above entries, the term 'alloy' when not accompanied by a specific elemental concentration is understood as identifying those alloys where the identified metal is present in a higher percentage by weight than any other element.

Statement of Understanding

These controls do not apply to equipment which is specially designed for use in civil applications (for example food processing, pulp and paper processing, or water purification, etc) and is, by the nature of its design, inappropriate for use in storing, processing, producing or conducting and controlling the flow of chemical warfare agents or any controlled

precursor chemical.

Note 1. The objective of these controls should not be defeated by the transfer of any non-controlled item containing one or more controlled components where the controlled component or components are the principal element of the item and can feasibly be removed or used for other purposes.

N.B. In judging whether the controlled component or components are to be considered the principal element, governments should weigh the factors of quantity, value, and technological know-how involved and other special circumstances which might establish the controlled component or components as the principal element of the item being procured.

Note 2. The objective of these controls should not be defeated by the transfer of a whole plant, on any scale, which has been designed to produce any CW agent or precursor chemical.

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Government of India
Ministry of Commerce and Industry
Department of Commerce

NOTIFICATION No. 116 (RE-2013)/2009-2014 .
New Delhi, Dated : 13 March, 2015

Subject: **Updation of SCOMET list [Appendix 3 to Schedule 2 of ITC (HS) Classification of Export & Import Items].**

S.O. (E) In exercise of powers conferred by Section 5 and Section 14 A of the Foreign Trade (Development & Regulation) Act, 1992 {FT(D&R) Act,1992} as amended, the Central Government hereby makes the following amendments to the list of specified goods, services and technologies, i.e. Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) that was notified vide Notification No.37 (RE-2012) /2009-2014 dated 14th March, 2013 and amended vide Notification No.26 (RE-2013) /2009-2014 dated 3rd July, 2013:

2. Amendments in the SCOMET categories will be as follows:

A) After SCOMET 2A028, the following shall be added:-

"2A029	Enterohaemorrhagic Escherichia coli, serotype O157 and other verotoxin producing serotypes
2A030	Mycoplasma capricolum subspecies capripneumoniae ('strain F38')
2A031	Salmonella typhi"

B) After SCOMET 2B005, the following shall be added:-

"2B006	Coccidiodes posadasii"

C) After SCOMET 2D053, the following shall be added:-

"2D054	Andes virus
2D055	Chapare virus
2D056	Choclo virus
2D057	Dobrava-Belgrade virus
2D058	Herpes virus (Aujeszky's disease)
2D059	Hendra virus (Equine morbillivirus)
2D060	Laguna Negra virus
2D061	Louping ill virus
2D062	Lujo virus
2D063	Lumpy skin disease virus
2D064	Lassa fever virus

2D065	Nipah virus
2D066	Oropouche virus
2D067	Porcine enterovirus type 9 (synonym: swine vesicular disease virus)
2D068	Rocio virus
2D069	Seoul virus”

D) After SCOMET 2F017, the following shall be added:-

“2F018	Cholera toxin
2F019	Conotoxin
2F020	Diacetoxyscirpenol toxin
2F021	HT-2 toxin
2F022	Modeccin toxin
2F023	T-2 toxin
2F024	Verotoxin and shiga-like ribosome inactivating proteins
2F025	Viscum Albut Lectin 1 (Viscumin)
2F026	Volkensin toxin ”

E) After SCOMET 2G024, the following shall be added:-

“2G025	Clavibacter michiganensis subsp. sepedonicus
2G026	Cochliobolus miyabeanus
2G027	Andean potato latent virus (Potato Andean latent tymovirus)
2G028	Potato spindle tuber viroid”

F) For SCOMET 3A301, the following shall be substituted:

“ 3A301 Fuel substances as follows:

a. Hydrazine (CAS 302-01-2) with a concentration of more than 70%;
b. Hydrazine derivatives as follows:
    1. Monomethylhydrazine (MMH) (CAS 60-34-4);
    2. Unsymmetrical dimethylhydrazine (UDMH) (CAS 57-14-7);
    3. Hydrazine mononitrate (CAS 13464-97-6);
    4. Trimethylhydrazine (CAS 1741-01-1);
    5. Tetramethylhydrazine (CAS 6415-12-9);
    6. N, N diallylhydrazine (CAS 5164-11-4);
    7. Allylhydrazine (CAS 7422-78-8);
    8. Ethylene dihydrazine;
    9. Monomethylhydrazine dinitrate;
    10. Unsymmetrical dimethylhydrazine nitrate;
    11. Hydrazinium azide (CAS 14546-44-2);
    12. Dimethylhydrazinium azide;
    13. Hydrazinium dinitrate (CAS 13464-98-7);
    14. Diimido oxalic acid dihydrazine (CAS 3457-37-2);

15. 2-hydroxyethylhydrazine nitrate (HEHN);
16. Hydrazinium perchlorate (CAS 27978-54-7);
17. Hydrazinium diperchlorate (CAS 13812-39-0);
18. Methylhydrazine nitrate (MHN) (CAS 29674-96-2);
19. Diethylhydrazine nitrate (DEHN);
20. 3, 6-dihydrazino tetrazine nitrate (DHTN);

Technical note: 3, 6-dihydrazino tetrazine nitrate is also referred to as 1, 4-dihydrazine nitrate

c. Spherical or spheroidal aluminium powder (CAS 7429-90-5) in particle size of less than 200 x 10-6 m (200 µm) and an aluminium content of 97% by weight or more, if at least 10% of the total weight is made up of particles of less than 63 µm, according to ISO 2591-1:1988 or national equivalents;

Technical Note: A particle size of 63 µm (ISO R-565) corresponds to 250 mesh (Tyler) or 230 mesh (ASTM standard E-11).

d. Hydrazine replacement fuels as follows:

1.2-Dimethylaminoethylazide (DMAZ) (CAS 86147-04-8)";

G) For SCOMET 3A303, the following shall be substituted:

" 3A303 Polymeric substances, as follows:

a. Carboxy-terminated polybutadiene (including carboxyl – terminated polybutadiene) (CTPB);
b. Hydroxy-terminated polybutadiene (including hydroxyl – terminated polybutadiene) (HTPB);
c. Glycidyl azide polymer (GAP);
d. Polybutadiene - Acrylic Acid (PBAA);
e. Polybutadiene - Acrylic Acid - Acrylonitrile (PBAN);
f. Polytetrahydrofuran polyethylene glycol (TPEG).
g. Polyglycidyl nitrate (PGN or poly-GLYN) (CAS 27814-48- 8).

Technical Note:
Polytetrahydrofuran polyethylene glycol (TPEG) is a block co-polymer of poly 1, 4-Butanediol (CAS 110-63-4) and polyethylene glycol (PEG) (CAS 25322-68-3)."

H) For SCOMET 3B016, the following shall be substituted:

"3B016 Metal powder production equipment usable for the production, in a controlled environment, of spherical, spheroidal or atomised materials specified in 3A301.c. or 3A302.

Note: This entry includes:

a. Plasma generators (high frequency arc-jet) usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;
b. Electroburst equipment usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;
c. Equipment usable for the production of spherical aluminium powders by powdering a melt in an inert medium (e.g. nitrogen). ”

I) In SCOMET 5A102 -

(i) for clause c and the entry relating thereto, the following shall be substituted:

“c. Liquid, slurry and gel propellant (including oxidisers) control systems, and specially designed components therefor, usable in missiles and rockets, designed or modified to operate in vibration environments greater than 10 g rms between 20 Hz and 2 kHz.

Notes:

1. The only servo valves, pumps and gas turbines specified in 3.A.5. are the following:

1.1. Servo valves designed for flow rates equal to or greater than 24 litres per minute, at an absolute pressure equal to or greater than 7 MPa, that have an actuator response time of less than 100 ms.
1.2. Pumps, for liquid propellants, with shaft speeds equal to or greater than 8,000 rpm at the maximum operating mode or with discharge pressures equal to or greater than 7 MPa
1.3. Gas turbines, for liquid propellant turbopumps, with shaft speeds equal to or greater than 8,000 rpm at the maximum operating mode.

2. Systems and components specified in this clause may be exported as part of a satellite”;

(ii) after clause i and the entry therein, the following shall be inserted:

“j. Combustion chambers and nozzles for liquid propellant rocket engines”;

J) In SCOMET 5C009, for the words “and Accelerometer test station” the figure and words“, Accelerometer test station and Fiber Optic Gyro Coil Winding Machines” shall be substituted

K) After SCOMET 7A009 and the entry relating thereto, the following shall be inserted:

"7A010 Analogue-to-digital converters, usable in the systems specified in 5A, having any of the following characteristics:

a. Designed to meet military specifications for ruggedised equipment; or
b. Designed or modified for military use and being any of the following types:

1. Analogue-to-digital converter microcircuits, which are radiation-hardened or have all of the following characteristics:

1.1. Rated for operation in the temperature range from below -54°C to above +125°C; and
1.2. Hermetically sealed;

or

2. Electrical input type analogue-to-digital converter printed circuit boards or modules, having all of the following characteristics:

2.1. Rated for operation in the temperature range from below -45°C to above +80°C; and
2.2. Incorporating microcircuits specified in 7A010.b.1."

3. Purpose of this notification:

Amendments/additions to Categories 2, 3, 5 & 7 of SCOMET list [Appendix 3 to Schedule 2 of ITC(HS) Classification of Export & Import Items] have been notified.

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Director General of Foreign Trade
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[Issued from File No. 01/91/171/37/AM10/EC(S)]

[TO BE PUBLISHED IN THE GAZETTE OF INDIA EXTRAORDINARY PART – II, SECTION – 3, SUB SECTION (ii)]

GOVERNMENT OF INDIA
MINISTRY OF COMMERCE AND INDUSTRY
DEPARTMENT OF COMMERCE
DIRECTORATE GENERAL OF FOREIGN TRADE

NOTIFICATION No. 05 /(2015-2020)
NEW DELHI, DATED: 29th April, 2016

Subject: Updation of SCOMET list [Appendix 3 to Schedule 2 of ITC (HS) Classification of Export & Import Items].

S.O. (E) In exercise of powers conferred by Section 5 and Section 14 A of the Foreign Trade (Development & Regulation) Act, 1992 {FT(D&R) Act,1992} as amended, the Central Government hereby makes the following amendments to the list of specified goods, services and technologies, i.e. Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) that was notified vide Notification No.37 (RE-2012) /2009-2014 dated 14th March, 2013 and amended vide Notification No.26 (RE-2013) /2009-2014 dated 3rd July, 2013 and vide Notification No. 116 (RE-2013)/2009-2014 dated 13th March, 2015:

2. Amendments in the SCOMET categories will be as follows:

A. For SCOMET Category 0 and the entries there under, the following shall be substituted as follows:

" Category 0 Nuclear materials, nuclear-related other materials, equipment and technology

Note: Export of these items is regulated under the Atomic Energy Act, 1962 and rules framed, and notifications/orders issued there under from time-to-time by the Department of Atomic Energy. The licensing authority for items in this category is the Department of Atomic Energy. An application for licence to export shall be made in writing to the Joint Secretary (I&M), Department of Atomic Energy, Anushakti Bhavan, CSM Marg, Mumbai 400 001

0A PRESCRIBED SUBSTANCES

Note: Any radioactive material in Category 0A shall additionally attract the provisions of Radiation Protection Rules, 2004 made under the Atomic Energy Act, 1962 and the provisions of Section-16 of the Atomic Energy Act, 1962.

0A1 Source Material

0A101 Uranium containing the mixture of isotopes occurring in nature.

0A102 Uranium depleted in the isotope 235.

0A103 Thorium.

0A104 Any of the materials specified above in 0A101, 0A102, or 0A103 in the form of metal, alloy, chemical compound, or concentrate.

0A105 Any other material containing one or more of the foregoing.

Note 1:
Source material includes uranium and thorium ores or concentrates.

Note 2:
Exports of following items, for the use only in non-nuclear activities, to a given recipient country, within a period of one calendar year, not exceeding the limits specified below, are not controlled:

a. Uranium (containing the mixture of isotopes in nature): 100 kilograms.
b. Depleted uranium (uranium depleted in the isotope 235 below that occurring in nature): 1000 kilograms.
c. Thorium: 1000 kilograms.

Note 3: 0A1 does not control following –

i. Uranium and thorium ores, mineral concentrates or other materials that contain less than 300 parts per million (ppm) of uranium or/and thorium;
ii. Alloys containing less than 5 % thorium;
iii. Ceramic products containing thorium, which have been manufactured for non-nuclear use.

0A2 Special Fissionable Material

0A201 Plutonium-239.

0A202 Uranium-233.

0A203 Uranium enriched in the isotopes 235 or 233.

0A204 Neptunium.

0A205 Any material containing one or more of the foregoing.

0A206 Such other fissionable material determined by the Central Government from time to time.

Technical note:

The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

Note:

1. The term "special fissionable material" does not include source material.
2. Any quantity of special fissionable material is prescribed substance.
3. 0A2 does not control -
   a. Plutonium with an isotopic concentration of plutonium-238 exceeding 80%, and
   b. Special fissionable material when used in gram quantities or less as a sensing component in instruments.

0A3 Other Materials

'Other Materials' means non-nuclear materials for reactors, nuclear related dual-use materials indicated below and such materials as determined by the Central Government from time to time.

0A301 Deuterium and heavy water

Deuterium, heavy water (deuterium oxide) and any other deuterium compound, in which the ratio of deuterium to hydrogen atoms exceeds 1:5000,

a. for use in a nuclear reactor in quantities exceeding 5 kilograms of deuterium atoms in one consignment or 25 kilograms of deuterium atoms, for any one recipient country within a period of one calendar year;
b. for use in a non-nuclear activity in quantities exceeding 200 kilograms of deuterium atoms, for any one recipient country within a period of one calendar year.

0A302 Nuclear grade graphite

Nuclear grade graphite having a purity level better than 5 parts per million (ppm) boron equivalent and with a density greater than 1.5 gram/cc -

a. for use in a nuclear reactor or any other nuclear activities in quantities exceeding 1 kilogram;
b. for use in non-nuclear activities in quantities exceeding 30 metric tons for any one recipient country within a period of one calendar year.

Note: The item 0A302 does not cover graphite powder.

0A303 Zirconium with hafnium content of less than 1 part to 500 parts of zirconium by weight (i.e. less than 2000 ppm) in the form of metal, alloys containing more than 50% zirconium by weight, compounds, manufactures thereof, waste or scrap of any of the foregoing.

0A304 Beryllium metal, its compounds, alloys containing more than 50% beryllium by weight, manufactures thereof, and waste or scrap of any of the foregoing and its minerals / concentrates including beryl but excluding:

a. beryllium windows used for x-ray machines or for bore-hole logging devices, and
b. beryl in the form of emerald, aquamarine or 'cut & polished' semi-precious stones for use in jewellery.

0A305 Lithium enriched in the Lithium-6 (^{6}Li) isotope to greater than its natural isotopic abundance (i.e. more than 7.5%) and the products or devices containing enriched lithium such as elemental lithium, alloys, compounds, mixtures containing lithium, manufactures thereof, waste or scrap of any of the foregoing.

0A306 Niobium and Tantalum, their metals, alloys and minerals including columbite and tantalite.

0A307 [Reserved]

0A308 Tritium, tritium compounds or mixtures containing tritium in which the ratio of tritium to hydrogen atoms exceeds 1 part in 1000, except when utilized in such quantities and for such purposes as for organic labelled compounds, Gas Filled Light Sources and as Tritiated Water for radiotracer studies.

0A309 Hafnium
Hafnium metal, alloys containing more than 60% hafnium by weight, hafnium compounds containing more than 60% hafnium by weight, manufactures thereof, and waste or scrap of any of the foregoing.

0A310 Radium-226
Radium-226 (^{226}Ra), radium-226 alloys, radium-226 compounds, mixtures containing radium-226, manufactures thereof, and products or devices containing any of the foregoing, except medical applicators and a product or device containing less than 0.37 GBq (10mCi) of Ra-226 in any form.

0A311 Boron
Boron enriched in the Boron-10 (^{10}B) isotope to greater than its natural isotopic abundance as follows:
Elemental boron, compounds, mixtures containing boron, manufactures thereof, waste or scrap of any of the foregoing.

0A312 Helium-3
Helium-3 (^{3}He), mixtures containing helium-3, and products or devices containing any of the foregoing.
Note: A product or device containing less than 1gm of Helium-3 is excluded.

0A313 'Radionuclides' appropriate for making neutron sources based on alpha-n reaction, in the following forms:

a. Elemental;
b. Compounds having a total activity of 37 GBq per kg or greater;
c. Mixtures having a total activity of 37 GBq per kg or greater;
d. Products or devices containing any of the foregoing.

Radionuclides controlled by this item include:

Actinium-225	Actinium-227	Californium-253
Curium-240	Curium-241	Curium-242
Curium-243	Curium244	Einsteinium-253
Einsteinium254	Gadolinium-148	Plutonium-236
Plutonium-238	Polonium-209	Polonium-210
Polonium-208	Radium-223	Thorium-228
Thorium-227	Uranium-230	Uranium-232

0B Prescribed Equipment

0B001 Nuclear Reactors; associated equipment, components, and systems especially designed, prepared, or adapted or used or intended to be used in such reactors including but not limited to:-

a. Complete nuclear reactors
b. Nuclear reactor vessels
c. Nuclear reactor fuel charging and discharging machines
d. Nuclear reactor control rods and equipment
e. Nuclear reactor pressure tubes
f. Nuclear fuel cladding: Zirconium metal tubes or zirconium alloy tubes (or assemblies of tubes), in which hafnium to zirconium ratio is 1:500 or less, for use as nuclear fuel cladding
g. Primary coolant pumps or circulators
h. Nuclear reactor internals
i. Heat exchangers (steam generators) for use in the primary or intermediate coolant circuit of a nuclear reactor
j. Neutron detectors
k. External thermal shields.

0B002 Plants for processing, production, concentration, conversion or recovery of Prescribed Substances (such as uranium, plutonium, thorium, deuterium, heavy water, tritium, lithium); associated equipment, components and systems especially designed, prepared or adapted or used or intended to be used in such plants including but not limited to:

a. Plants for production or concentration of deuterium, heavy water or deuterium compounds-
   1. Water - Hydrogen Sulphide Exchange Towers with diameters of 1.5 m or greater and capable of operating at pressures greater than or equal to 2 MPa (300 psi), especially designed or prepared for heavy water production.
   2. Especially designed or prepared blowers and compressors for hydrogen-sulphide gas circulation. These blowers or compressors have a throughput capacity greater than or equal to 56 m^3/second (120,000 SCFM) while operating at pressures greater than or equal to 1.8 MPa (260 psi) suction and have seals designed for wet H_2S service
   3. Ammonia-Hydrogen Exchange Towers greater than or equal to 35 m in height with diameters of 1.5 m to 2.5 m capable of operating at pressures greater than 15 MPa especially designed or prepared for heavy water production
   4. Tower Internals and Stage Pumps: Tower internals and stage pumps especially designed or prepared for heavy water production. Tower internals include especially designed stage contactors which promote intimate gas/liquid contact. Stage pumps include especially designed submersible pumps for circulation of liquid ammonia within a contacting stage internal to the stage towers.
   5. Ammonia Crackers with operating pressures greater than or equal to 3 MPa especially designed or prepared for heavy water production.
   6. Infrared Absorption Analyzers capable of 'on-line' hydrogen/deuterium ratio analysis
   7. Catalytic Burners for conversion of enriched deuterium gas into heavy water
   8. Complete heavy water upgrade systems or columns therefor
   9. Ammonia synthesis converters or synthesis units for heavy water production utilizing the ammonia-hydrogen exchange process.

b. Plants for the conversion of uranium
   1. Systems for the conversion of uranium ore concentrates to UO_3;
   2. Systems for the conversion of UO_3 to UF_6;
   3. Systems for the conversion of UO_3 to UO_2;
   4. Systems for the conversion of UO_2 to UF_4;
   5. Systems for the conversion of UF_4 to UF_6;
   6. Systems for the conversion of UF_4 to uranium metal;
   7. Systems for the conversion of UF_6 to UO_2;
   8. Systems for the conversion of UF_6 to UF_4;
   9. Systems for the conversion of UO_2 to UCl_4.

c. Plants for the conversion of plutonium
   1. systems for the conversion of plutonium nitrate to oxide
   2. systems for plutonium metal production

d. Tritium facilities or plants for the production, recovery, extraction, concentration or handling of tritium and equipment therefor including

hydrogen or helium refrigeration units; and hydrogen isotope storage or purification systems using metal hydrides as the storage or purification medium.

e. Lithium isotope separation facilities or plants, and systems and equipment therefor as follows -

1. Facilities or plants for the separation of lithium isotopes;
2. Equipment for the separation of lithium isotopes based on the lithium-mercury amalgam process, as follows:
   a) Packed liquid-liquid exchange columns especially designed for lithium amalgams;
   b) Mercury or lithium amalgam pumps;
   c) Lithium amalgam electrolysis cells;
   d) Evaporators for concentrated lithium hydroxide solution;
3. Ion exchange systems especially designed for lithium isotope separation, and especially designed component parts therefor;
4. Chemical exchange systems (employing crown ethers, cryptands, or lariat ethers) especially designed for lithium isotope separation, and especially designed component parts therefor.

0B003 Plants for reprocessing of irradiated nuclear fuel and equipment, components and systems especially designed, prepared or adapted or used or intended to be used in such plants, including but not limited to:

a. Irradiated fuel element chopping machines designed for remote operation
b. Dissolvers capable of withstanding hot and highly corrosive liquid for dissolution of irradiated nuclear fuel and which can be remotely loaded and maintained
c. Solvent extractors and solvent extraction equipment resistant to the corrosive effect of nitric acid
d. Chemical holding or storage vessels resistant to the corrosive effect of nitric acid
e. Neutron measurement systems for integration and use with automated process control systems for the reprocessing of irradiated fuel elements.
f. Industrial equipment including assemblies and components as follows:
   1. High density (lead glass or other) radiation shielding windows
   2. Radiation hardened TV cameras, or lenses therefor
   3. 'Robots' or 'end effectors' especially designed for handling high explosives; and control units therefor
   4. Remote manipulators that can be used to provide remote actions in radiochemical separation operations or hot cells

0B004 Plants for treatment, handling, storage and transportation of radioactive wastes from nuclear reactors or from plants for processing Source Materials or Special Fissionable Materials or from nuclear reprocessing plants; irradiated nuclear fuel; Special Fissionable Materials, and equipment especially designed, prepared, adapted, or intended to be used therefor.

0B005 All systems, associated equipment, components for separation or enrichment of isotopes of uranium, plutonium, lithium, boron or other elements, other than analytical instruments, especially designed, prepared, adapted, used or intended to be used therefor as follows:

a. Gas centrifuges and assemblies and components especially designed or prepared for use in gas Centrifuges

1. Gas centrifuges;
2. Complete rotor assemblies; Thin-walled cylinders, or a number of interconnected thin-walled cylinders, manufactured from one or more of the high strength-to-density ratio materials described in the Note-1 in 0B005.a. If interconnected, the cylinders are joined together by flexible bellows or rings as described in 0B005.a.4. The rotor is fitted with an internal baffle(s) and end caps, as described in 0B005.a.5 and 0B005.a.6.
3. Rotor tube cylinders: Especially designed or prepared thin-walled cylinders with thickness of 12 mm or less, a diameter of between 75 mm and 650 mm, and manufactured from one or more of 'high strength-to-density ratio materials' described in the Note-1 in 0B005.a;
4. Rings or bellows: Rings or bellows with wall thickness of 3 mm or less and a diameter of between 75 mm and 650 mm especially designed to give local support to a rotor tube or to join together a number of rotor tubes, made from 'high strength-to-density ratio materials' described in the Note-1 in 0B005.a.
5. Baffles: Disc-shaped components of between 75 mm and 650 mm diameter especially designed or prepared for mounting inside a rotor tube, in order to isolate the take-off chamber from the main separation chamber and manufactured from 'high strength-to-density ratio materials' described in the Note-1 in 0B005.a.
6. Top or bottom caps: Especially designed or prepared disc-shaped components of between 75 mm and 400 mm diameter especially designed or prepared to fit the ends of a rotor tube, and so contain the UF_6 within the rotor tube, and in some cases to support, retain or contain as an integrated part an element of the upper bearing (top cap) or to carry the rotating elements of the motor and lower bearing (bottom cap), and manufactured from 'high strength-to-density ratio materials' described in the Note-1 in 0B005.a;
7. Especially prepared Magnetic Suspension Bearings with both of the following attributes:
   a. Bearing assemblies consisting of an annular magnet suspended within a housing made of or protected by "materials resistant to corrosion by UF_6" (see Note 3 of 0B005) containing a damping medium and having the magnet coupling with a pole piece or second magnet fitted to the top cap of the rotor;
   b. Active magnetic bearings especially designed or prepared for use with gas centrifuges. These bearings usually have the following characteristics: i) Designed to keep centred a rotor spinning at 600 Hz or more; and ii) Associated to a reliable electrical power supply and/or to an uninterruptible power supply (UPS) unit in order to function for more than one hour.
8. Bearings / Dampers: Especially designed or prepared bearings comprising a pivot/cup assembly mounted on a damper. The pivot is normally a hardened

steel shaft with a hemisphere at one end with a means of attachment to the bottom cap described in 0B005.a.6 at the other. The shaft may however have a hydrodynamic bearing attached. The cup is pellet-shaped with a hemispherical indentation in one surface. These components are often supplied separately to the damper.

9. Molecular pumps: Molecular pumps are high vacuum pumps consisting of especially designed or prepared cylinders having internally machined or extruded helical grooves and internally machined bores. Typical dimensions are as follows: 75 mm to 650 mm internal diameter, 10 mm or more wall thickness, with the length equal to or greater than the diameter. The grooves are typically rectangular in cross-section and 2 mm or more in depth.
10. Ring-shaped motor stators: Especially designed or prepared ring-shaped stators for high speed multiphase AC hysteresis (or reluctance) motors for synchronous operation within a vacuum at a frequency of 600 Hz or greater and a power of 40 VA or greater. The stators may consist of multi-phase windings on a laminated low loss iron core comprised of thin layers typically 2.0 mm thick or less.
11. Centrifuge housing/recipients to contain the rotor tube assembly of a gas centrifuge consisting of rigid cylinder of wall thickness up to 30 mm with precision machined ends that are parallel to each other and perpendicular to the cylinder's longitudinal axis to within 0,05 degrees or less.
12. Scoops consisting of tubes for the extraction of UF_6 gas from within the rotor tube by a Pitot tube action and capable of being fixed to the central gas extraction system.

Note 1: The high strength-to-density ratio materials used for centrifuge rotating components include the following:

(a) Maraging steel capable of an ultimate tensile strength of 1.95 GPa or more;

(b) Aluminium alloys capable of an ultimate tensile strength of 0.46 GPa or more;

(c) Filamentary materials suitable for use in composite structures and having a specific modulus of 3.18×10^6 m or greater and a specific ultimate tensile strength of 7.62×10^4 m or greater.

Note 2: 'Specific Modulus' is the Young's Modulus in N/m^2 divided by the specific weight in N/m^3; 'Specific Ultimate Tensile Strength' is the ultimate tensile strength in N/m^2 divided by the specific weight in N/m^3.

b. Especially designed or prepared auxiliary systems, equipment and components for gas centrifuge enrichment plants

1. Machine header piping systems for handling UF_6 within the centrifuge cascades;
2. Frequency changers (converters or inverters) especially designed or prepared to supply motor stators for gas centrifuge enrichment, having all of the following characteristics, and especially designed components therefor:
   a. A multiphase frequency output of 600 Hz or greater; and
   b. High stability (with frequency control better than 0.2 %).

c. Especially designed or prepared assemblies and components for use in gaseous diffusion enrichment

1. Gaseous diffusion barriers and barrier materials resistant to corrosion by UF_6 described in the Note-3 in 0B005;
2. Gaseous diffuser housings made of or protected by materials resistant to corrosion by UF_6 described in the Note-3 in 0B005;
3. Compressors (positive displacement, centrifugal and axial flow types) or gas blowers with a suction volume capacity of 1 m^3 /min or more of UF_6, discharge pressure up to 500 kPa and having a pressure ratio of 10:1 or less designed for long term operation in the UF_6 environment and made of or protected by materials resistant to corrosion by UF_6 described in the Note-3 in 0B005.

d. Especially designed or prepared auxiliary systems, equipment and components for use in gaseous diffusion enrichment:

Piping systems and header systems for handling UF_6 within the gaseous diffusion cascades.

e. Especially designed or prepared systems, equipment and components for use in aerodynamic enrichment plants:

1. Especially designed or prepared separation nozzles and assemblies thereof. The separation nozzles consist of slit-shaped, curved channels having a radius of curvature less than 1 mm, made of materials resistant to corrosion by UF_6 described in the Note-3 in 0B005 and having a knife-edge within the nozzle that separates the gas flowing through the nozzle into two fractions;
2. Especially designed or prepared vortex tubes and assemblies thereof. The vortex tubes are cylindrical or tapered, made of or protected by materials resistant to corrosion by UF_6 described in the Note-3 in 0B005 and with one or more tangential inlets. The tubes may be equipped with nozzle type appendages at either or both ends;
3. Especially designed or prepared compressors or gas-blowers made of or protected by materials resistant to corrosion by the UF_6 (see the Note-3 in 0B005) / carrier gas (hydrogen or helium) mixture;
4. Especially designed or prepared separation element housings made of or protected by materials resistant to corrosion by UF_6 described in the Note-3 in 0B005, for containing vortex tubes or separation nozzles;
5. Especially designed or prepared header-piping systems, made of or protected by materials resistant to corrosion by UF_6 described in the Note-3 in 0B005, for handling UF_6 within the aerodynamic cascades;
6. UF_6/carrier gas separation systems for separating UF_6 from carrier gas (hydrogen or helium).

f. Especially designed or prepared systems, equipment and components for use in chemical exchange or ion exchange enrichment plants.

1. Countercurrent Liquid-liquid exchange columns (Chemical exchange), having mechanical power input, especially designed or prepared for uranium enrichment using the chemical exchange process. For corrosion resistance to

concentrated hydrochloric acid solutions, these columns and their internals are normally made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions. The stage residence time of the columns is normally designed to be 30 seconds or less.

2. Liquid-liquid centrifugal contactors (Chemical exchange), especially designed or prepared for uranium enrichment using the chemical exchange process. Such contractors are made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions, The stage residence time of the columns is normally designed to be 30 seconds or less.
3. Uranium reduction systems and equipment (Chemical exchange):
    a. Especially designed or prepared electrochemical reduction cells to reduce uranium from one valence state to another for uranium enrichment using the chemical exchange process. The cell materials in contact with process solutions must be corrosion resistant to concentrated hydrochloric acid solutions;
    b. Especially designed or prepared systems consisting of solvent extraction equipment and pumps or other transfer devices at the product end of the cascade for taking the U^{+4} out of the organic stream.
4. Feed preparation systems (Chemical exchange) consisting of dissolution, solvent extraction and/or ion exchange equipment for producing high-purity uranium chloride.
5. Uranium oxidation systems (Chemical exchange) for oxidation of U^{+3} to U^{+4}

6. Fast-reacting ion exchange resins/adsorbents (Ion exchange):
    Fast-reacting ion-exchange resins or adsorbents, especially designed or prepared for uranium enrichment using the chemical exchange process, including porous macroreticular resins, and/or pellicular structures and other composite structures in any suitable form including particles or fibres chemically resistant to concentrated hydrochloric acid solutions.

7. Ion exchange columns (Ion exchange):
    Cylindrical columns for containing and supporting packed beds of ion exchange resin/adsorbent and made of or protected by materials resistant to corrosion by concentrated hydrochloric acid solutions.

8. Ion exchange reflux systems (Ion exchange):
    Chemical or electrochemical oxidation or reduction systems for regeneration of the chemical oxidizing or reducing agent(s) used in ion exchange enrichment cascades.

g. Especially designed or prepared systems, equipment and components for use in laser-based enrichment plants.

1. Uranium vaporization systems (atomic vapour based methods)
2. Liquid or vapour uranium metal handling systems and components (atomic vapour based methods)
3. Uranium metal ‘product’ and ‘tails’ collector assemblies (atomic vapour based methods)
4. Separator module housings (atomic vapour based methods)

5. Supersonic expansion nozzles (molecular based methods)
6. 'Product' or 'tails' collectors (molecular based methods)
7. UF_6/carrier gas compressors (molecular based methods)
8. Rotary shaft seals (molecular based methods)
9. Fluorination systems (molecular based methods)
10. UF_6/carrier gas separation systems (molecular based methods)
11. 'Lasers' or 'laser systems or components' for the separation of uranium isotopes.

h. Especially designed or prepared systems, equipment and components for use in plasma separation enrichment plants

1. Microwave power sources and antennae: Especially designed or prepared microwave power sources and antennae for producing or accelerating ions and having the following characteristics: greater than 30 GHz frequency and greater than 50 kW mean power output for ion production.
2. Radio frequency ion excitation coils for frequencies of more than 100 kHz
3. Uranium plasma generation systems
4. Uranium metal 'product' and 'tails' collector assemblies made of or protected by materials resistant to the heat and corrosion of uranium metal vapour.
5. Separator module housings (cylindrical vessels) for containing the uranium plasma source, radio-frequency drive coil and the 'product' and 'tails' collectors.

i. Especially designed or prepared systems, equipment and components for use in electromagnetic enrichment plants.

1. Electromagnetic isotope separators for separation of uranium isotopes and equipment and components therefor, including ion sources (consisting of a vapour source, ionizer, and beam accelerator), ion collectors (consisting of collector plates), vacuum housings and magnet pole pieces;
2. High voltage power supplies for ion sources: Especially designed or prepared high-voltage power supplies for ion sources, having all of the following characteristics: capable of continuous operation, output voltage of 20,000 V or greater, output current of 1 A or greater, and voltage regulation of better than 0.01% over a time period of 8 hours
3. High-power, direct current magnet power supplies: Especially designed or prepared high-power, direct current magnet power supplies having all of the following characteristics: capable of continuously producing a current output of 500 A or greater at a voltage of 100 V or greater and with a current or voltage regulation better than 0.01% over a period of 8 hours.

j. Especially designed or prepared other equipment and components for use in enrichment plants:

1. Feed systems / product and tails withdrawal systems such as feed autoclaves, ovens, or systems, desublimers, cold traps or pumps, solidification or liquefaction stations, 'product' or 'tails' stations used for handling UF_6;
2. Special shut-off valves, control valves, bellow sealed valves, manual or automated, shut-off or control, made of or protected by materials resistant to corrosion by UF_6;
3. UF_6 mass spectrometers / ion sources capable of taking on-line samples from UF_6 gas stream; ;
4. Rotary shaft seals for compressors or blowers;
5. Heat exchangers made of or protected by "materials resistant to corrosion by UF_6";
6. Vacuum systems including vacuum manifolds, vacuum headers and vacuum pumps made of, or protected by, materials resistant to corrosion by UF_6.

Notes to 0B005:
1: Controls under 0B005 also apply to the plants and equipment that are intended for isotope separation of other elements.
2: "Other elements" means all elements other than hydrogen, uranium and plutonium.
3: Materials resistant to corrosion by UF_6 include copper, copper alloys, stainless steel, aluminium, aluminium oxide, aluminium alloys, nickel or alloys containing 60% or more nickel and fluorinated hydrocarbon polymers.

0B006 Plants for the fabrication of nuclear reactor fuel elements, and equipment especially designed or prepared therefor including but not limited to:

a. fully automatic pellet inspection stations especially designed or prepared for checking final dimensions and surface defects of the fuel pellets;
b. automatic welding machines especially designed or prepared for welding end caps onto the fuel pins (or rods);
c. automatic test and inspection stations especially designed or prepared for checking the integrity of completed fuel pins (or rods);
d. systems especially designed or prepared to manufacture nuclear fuel cladding.

Item 'c' typically includes equipment for: 1) x-ray examination of pin (or rod) end cap welds, 2) helium leak detection from pressurized pins (or rods), and 3) gamma-ray scanning of the pins (or rods) to check for correct loading of the fuel pellets inside.

0B007 Plants or systems for production, handling, storage and transportation of Radioisotopes in quantities exceeding 100 Curies (3.7×10^{12} Becquerel).

0B008 Neutron generators including neutron chain reacting assemblies and fusion assemblies of all kinds for producing fissile materials.

0C **Technology and software**

Technology and software for the development, production or use of prescribed substances or prescribed equipment specified in 0A or 0B. ”

B. For SCOMET 3A103, the following shall be substituted:-

“3A103 Tungsten , molybdenum, and alloys of those metals in particulate form and a particle size of 50 x10^{-6} m (50 μm) or less; ”

C. For SCOMET 3A107, the following shall be substituted:-

“3A107 Titanium-stabilised Duplex Stainless Steel (Ti-DSS) ”

D. For SCOMET 3A114, the following shall be substituted:-

“3A114

a. Nickel powder of purity 99.0% or greater by weight; and having a mean particle size of less than 10 μm measured by the ASTM B 330 standard;

b. Porous nickel metal produced from the nickel powder specified above ”

E. After SCOMET 3A117 and the entry relating thereto, the following shall be inserted:-

“**3A118** Titanium alloys having both of the following characteristics:

a. Capable of’ an ultimate tensile strength of 900 MPa or more at 293 K (20 degrees C); and
b. In the form of tubes or cylindrical solid forms (including forgings) with an outside diameter of more than 75 mm.

Technical note: The phrase ‘capable of’ encompasses titanium alloys before or after heat treatment

3A119 Rhenium, and alloys containing 90% by weight or more rhenium; and alloys of rhenium and tungsten containing 90% by weight or more of any combination of rhenium and tungsten, have both of the following characteristics:

a. In forms with a hollow cylindrical symmetry (including cylinder segments) with an inside diameter between 100 and 300 mm; and

b. A mass greater than 20kg

3A120 **Technology and Software**

Technology and software for the development, production or use of items specified in 3A1 or 3A4 ”

F. For SCOMET 3A401, the following shall be substituted

“ 3A401 High explosive substances or mixtures, containing more than 2 % by weight of any of the following:

a. Cyclotetramethylenetetranitramine (HMX) (CAS 2691-41-0);

b. Cyclotrimethylenetrinitramine (RDX) (CAS 121-82-4);

c. Triaminotrinitrobenzene (TATB) (CAS 3058-38-6);

d. Aminodinitrobenzo-furoxan or 7-amino-4,6 nitrobenzofurazane-1-oxide (ADNBF) (CAS 97096-78-1);

e. 1,1-diamino-2,2-dinitroethylene (DADE or FOX7) (CAS 145250-81-3);

f. 2,4-dinitroimidazole (DNI) (CAS 5213-49-0);

g. Diaminoazoxyfurazan (DAAOF or DAAF) (CAS 78644-89-0);

h. Diaminotrinitrobenzene (DATB) (CAS 1630-08-6);

i. Dinitroglycoluril (DNGU or DINGU) (CAS 55510-04-8);

j. 2,6-Bis (picrylamino)-3,5-dinitropyridine (PYX) (CAS 38082-89-2);

k. 3,3′-diamino-2,2′,4,4′,6,6′-hexanitrobiphenyl or dipicramide (DIPAM) (CAS 17215-44-0);

l. Diaminoazofurazan (DAAzF) (CAS 78644-90-3);

m. 1,4,5,8-tetranitro-pyridazino[4,5-d] pyridazine (TNP) (CAS 229176-04-9);

n. Hexanitrostilbene (HNS) (CAS 20062-22-0); or

o. Any explosive with a crystal density greater than 1.8 g/cm^3 and having a detonation velocity greater than 8000 m/s.

Note: License applications for the export of items at 3A401a and 3A401b will normally be denied. ”

G. SCOMET Category 4A, 4B and 4C and the entries relating thereto shall be substituted as follows:-

"4A Equipment, assemblies, components including test and production equipment

4A001 Flow-forming machines, spin-forming machines capable of flow-forming functions, and mandrels, as follows:

a. For flow forming machines refer to 5A205

b. Spin forming machines having both of the following characteristics:

1. Three or more rollers (active or guiding); and

2. Which, according to the manufacturer's technical specification, can be equipped with 'numerical control' units or a computer control.

c. Rotor-forming mandrels designed to form cylindrical rotors of inside diameter between 75 and 400 mm.

Note:
Item 4A001a and 4A001b include machines which have only a single roller designed to deform metal plus two auxiliary rollers which support the mandrel, but do not participate directly in the deformation process.

4A002 Machine tools, as follows, and any combination thereof, for removing or cutting metals, ceramics, or composites, which, according to the manufacturer's technical specifications, can be equipped with electronic devices for simultaneous "contouring control" in two or more axes;

N.B.: For "numerical control" units controlled by their associated "software", see Item 4C

a. Machine tools for turning, that have "positioning accuracies" with all compensations available better (less) than 6 μm according to ISO 230/2 (1988) along any linear axis (overall positioning) for machines capable of machining diameters greater than 35 mm;

Note: Item 4A002.a. does not control bar machines (Swissturn), limited to machining only bar feed thru, if maximum bar diameter is equal to or less than 42 mm and there is no capability of mounting chucks. Machines may have drilling and/or milling capabilities for machining parts with diameters

less than 42 mm.

b. Machine tools for milling, having any of the following characteristics:
   1. "Positioning accuracies" with all compensations available better (less) than 6 μm according to ISO 230/2 (1988) along any linear axis (overall positioning);
   2. Two or more contouring rotary axes; or
   3. Five or more axes which can be coordinated simultaneously for "contouring control".

   Note: Item 4A002.b. does not control milling machines having both of the following characteristics:
      1. X-axis travel greater than 2 m; and
      2. Overall "positioning accuracy" on the x-axis worse (more) than 30 μm according to ISO 230/2 (1988).

c. Machine tools for grinding, having any of the following characteristics:
   1. "Positioning accuracies" with all compensations available better (less) than 4 μm according to ISO 230/2 (1988) along any linear axis (overall positioning);
   2. Two or more contouring rotary axes; or
   3 Five or more axes which can be coordinated simultaneously for "contouring control".

   Note: Item 4A002.c. does not control grinding machines as follows:

      1. Cylindrical external, internal, and external-internal grinding machines having all the following characteristics:

         a. Limited to a maximum workpiece capacity of 150 mm outside diameter or length; and

         b. Axes limited to x, z and c.

      2. Jig grinders that do not have a z-axis or a w-axis with an overall positioning accuracy less (better) than 4 microns. Positioning accuracy is according to ISO 230/2 (1988).

d. Non-wire type Electrical Discharge Machines (EDM) that have two or more contouring rotary axes and that can be coordinated simultaneously for "contouring control".

   Notes: 1. Stated "positioning accuracy" levels derived under the

following procedures from measurements made according to ISO 230/2 (1988) or national equivalents may be used for each machine tool model if provided to, and accepted by, national authorities instead of individual machine tests.

Stated "positioning accuracy" are to be derived as follows:

a. Select five machines of a model to be evaluated;
b. Measure the linear axis accuracies according to ISO 230/2 (1988)
c. Determine the accuracy values (A) for each axis of each machine. The method of calculating the accuracy value is described in the ISO 230/2 (1988) standard;
d. Determine the average accuracy value of each axis. This average value becomes the stated "positioning accuracy" of each axis for the model ($\hat{A}_x$, $\hat{A}_y$...);
e. Since Item 4A002 refers to each linear axis, there will be as many stated "positioning accuracy" values as there are linear axes;
f. If any axis of a machine tool not controlled by Items 4A002.a., 4A002.b., or 4A002.c. has a stated "positioning accuracy" of 6 μm or better (less) for grinding machines, and 8 μm or better (less) for milling and turning machines, both according to ISO 230/2 (1988), then the builder should be required to reaffirm the accuracy level once every eighteen months.

2. Item 4A002. does not control special purpose machine tools limited to the manufacture of any of the following parts:

a. Gears

b. Crankshafts or cam shafts

c. Tools or cutters

d. Extruder worms

Technical Notes:1. Axis nomenclature shall be in accordance with International Standard ISO 841, "Numerical Control Machines - Axis and Motion Nomenclature".

2. Not counted in the total number of contouring axes are secondary parallel contouring axes (e.g., the w-axis on horizontal boring mills or a secondary rotary axis the centerline of which is parallel to the primary rotary

axis).

3. *Rotary axes do not necessarily have to rotate over 360 degrees. A rotary axis can be driven by a linear device, e.g., a screw or a rack-and-pinion.*

4. *For the purposes of 4A002. the number of axes which can be coordinated simultaneously for "contouring control" is the number of axes along or around which, during processing of the workpiece, simultaneous and interrelated motions are performed between the workpiece and a tool. This does not include any additional axes along or around which other relative motions within the machine are performed, such as:*

   a. *Wheel-dressing systems in grinding machines;*

   b. *Parallel rotary axes designed for mounting of separate workpieces;*

   c. *Co-linear rotary axes designed for manipulating the same workpiece by holding it in a chuck from different ends.*

5. *A machine tool having at least 2 of the 3 turning, milling or grinding capabilities (e.g., a turning machine with milling capability) must be evaluated against each applicable entry, 4A002.a., 4A002.b. and 4A002.c.*

6. *Items 4A002.b.3 and 4A002.c.3 include machines based on a parallel linear kinematic design (e.g., hexapods) that have 5 or more axes none of which are rotary axes.*

4A003 Dimensional inspection machines, instruments, or systems, as follows:

a. Computer controlled or numerically controlled coordinate measuring machines (CMM) having either of the following characteristics:

   1. Having only two axes and having a maximum permissible error of length measurement along any axis (one dimensional), identified as any combination of E0x MPE, E0y MPE or E0z MPE, equal to or less(better) than (1.25 + L/1000) μm (where L is the measured length in mm) at any point within the operating range of the machine (i.e., within the length of the axis), according to ISO 10360-2(2009); or
   2. Three or more axes and having a three dimensional (volumetric) maximum permissible error of length measurement (E0, MPE equal to

or less (better) than (1.7 + L/800) μm (where L is the measured length in mm) at any point within the operating range of the machine (i.e., within the length of the axis), according to ISO 10360-2(2009).

Technical Note: *The E0, MPE of the most accurate configuration of the CMM specified according to ISO 10360-2(2009) by the manufacturer (e.g., best of the following: probe stylus length, motion parameters, environment) and with all compensations available shall be compared to the 1.7 + L/ 800 μm threshold.*

b. Linear displacement measuring instruments, as follows:

1. Non-contact type measuring systems with a "resolution" equal to or better (less) than 0.2 μm within a measuring range up to 0.2 mm;

2. Linear variable differential transformer (LVDT) systems having both of the following characteristics:

a. 1. "Linearity" equal to or less (better) than 0.1% measured from 0 to the full operating range, for LVDTs with an operating range up to 5 mm; or

2. "Linearity" equal to or less (better) than 0.1% measured from 0 to 5 mm for LVDTs with an operating range greater than 5 mm; and

b. Drift equal to or better (less) than 0.1% per day at a standard ambient test room temperature ± 1 K;

3. Measuring systems having both of the following characteristics:

a. Contain a laser; and

b. Maintain for at least 12 hours, over a temperature range of ± 1 K around a standard temperature and a standard pressure:

1. A "resolution" over their full scale of 0.1 μm or better; and

2. With a "measurement uncertainty" equal to or better (less) than (0.2 + L/2000) μm (L is the measured length in millimeters);

Note: Item 1.B.3.b.3. does not control measuring interferometer systems, without closed or open loop feedback, containing a laser to measure slide movement errors of machine tools, dimensional inspection machines, or similar equipment.

Technical Note: In Item 1.B.3.b. 'linear displacement' means the change of distance between the measuring probe and the measured object.

c. Angular displacement measuring instruments having an "angular position deviation" equal to or better (less) than 0.00025°;

Note: Item 1.B.3.c. does not control optical instruments, such as autocollimators, using collimated light (e.g., laser light) to detect angular displacement of a mirror.

d. Systems for simultaneous linear-angular inspection of hemishells, having both of the following characteristics:

1. "Measurement uncertainty" along any linear axis equal to or better (less) than 3.5 μm per 5 mm; and
2. "Angular position deviation" equal to or less than 0.02°.

Notes: 1. Item 1.B.3. includes machine tools that can be used as measuring machines if they meet or exceed the criteria specified for the measuring machine function.
2. Machines described in Item 1.B.3. are controlled if they exceed the threshold specified anywhere within their operating range

Technical Note: All parameters of measurement values in this item represent plus/minus, i.e., not total band.

4A004 Controlled atmosphere (vacuum or inert gas) induction furnaces, and power supplies therefor, as follows:

a. Furnaces having all of the following characteristics:

1. Capable of operation at temperatures above 1123 K (850 °C);

2. Induction coils 600 mm or less in diameter; and

3. Designed for power inputs of 5 kW or more;

Note: Item 4A004.a. does not control furnaces designed for the processing of semiconductor wafers.

b. Power supplies, with a specified output power of 5 kW or more, specially designed for furnaces specified in Item 4A004.a.

4A005 Isostatic presses', and related equipment, as follows:

a. 'Isostatic presses' as specified in 5A208;

b. Dies, moulds, and controls specially designed for the 'isostatic presses' specified in Item 4A005.a.

Technical Notes:

1. *In Item 4A005 'Isostatic presses' means equipment capable of pressurizing a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal pressure in all directions within the cavity upon a work piece or material.*

2. *In Item 4A005 the inside chamber dimension is that of the chamber in which both the working temperature and the working pressure are achieved and does not include fixtures. That dimension will be the smaller of either the inside diameter of the pressure chamber or the inside diameter of the insulated furnace chamber, depending on which of the two chambers is located inside the other.*

4A006 Vibration test systems, equipment, and components as follows:

a. Electrodynamic vibration test systems, having all of the following characteristics:

1. Employing feedback or closed loop control techniques and incorporating a digital control unit;

2. Capable of vibrating at 10 g RMS or more between 20 and 2000 Hz; and

3. Capable of imparting forces of 50 kN or greater measured 'bare table';

b. Digital control units, combined with 'software' specially designed for vibration testing, with a real-time bandwidth greater than 5 kHz and being designed for a system specified in Item 4A006.a.;

c. Vibration thrusters (shaker units), with or without associated amplifiers, capable of imparting a force of 50 kN or greater measured 'bare table', which are usable for the systems specified in Item 4A006.a.;

d. Test piece support structures and electronic units designed to combine multiple shaker units into a complete shaker system capable of providing an effective combined force of 50 kN or greater, measured 'bare table,' which are usable for the systems specified in Item 4A006.a..

Technical Note: In Item 4A006 'bare table' means a flat table, or surface, with no fixtures or fittings.

4A007 Vacuum or other controlled atmosphere metallurgical melting and casting furnaces and related equipment, as follows:

a. Arc re-melt and casting furnaces having both of the following characteristics:

1. Consumable electrode capacities between 1000 and 20000 cm^3; and

2. Capable of operating with melting temperatures above 1973 K (1700 °C);

b. Electron beam melting furnaces and plasma atomisation and melting furnaces, having both of the following characteristics:

1. A power of 50 kW or greater; and

2. Capable of operating with melting temperatures above 1473 K (1200 °C);

c. Computer control and monitoring systems specially configured for any of the furnaces specified in Item 4A007.a. or 4A007.b.

4A008 Crucibles made of materials resistant to liquid actinide metals, as follows:

a. Crucibles having both of the following characteristics:

1. A volume of between 150 cm^3 (150 ml) and 8000 cm^3 (8 litres); and

2. Made of or coated with any of the following materials, or combination of

the following materials, having an overall impurity level of 2% or less by weight:

a. Calcium fluoride (CaF_2);

b. Calcium zirconate (metazirconate) ($CaZrO_3$);

c. Cerium sulphide (Ce_2S_3);

d. Erbium oxide (erbia) (Er_2O_3);

e. Hafnium oxide (hafnia) (HfO_2);

f. Magnesium oxide (MgO);

g. Nitrided niobium-titanium-tungsten alloy (approximately 50% Nb, 30% Ti, 20% W);

h. Yttrium oxide (yttria) (Y_2O_3); or

i. Zirconium oxide (zirconia) (ZrO_2);

b. Crucibles having both of the following characteristics:

1. A volume of between 50 cm^3 (50 ml) and 2000 cm^3 (2 litres); and

2. Made of or lined with tantalum, having a purity of 99.9% or greater by weight;

c. Crucibles having all of the following characteristics:

1. A volume of between 50 cm^3 (50 ml) and 2000 cm^3 (2 litres);

2. Made of or lined with tantalum, having a purity of 98% or greater by weight; and

3. Coated with tantalum carbide, nitride, boride, or any combination thereof.

4A009 Platinized catalysts specially designed or prepared for promoting the hydrogen isotope exchange reaction between hydrogen and water for the recovery of tritium from heavy water or for the production of heavy water.

4A010 Composite structures in the form of tubes having both of the following characteristics:

a. An inside diameter of between 75 and 400 mm; and

b. Made with any of the materials specified in Item 3A116.

4A011 Frequency changers or generators, usable as a variable frequency or fixed frequency motor drive, having all of the following characteristics:

N.B.1: Frequency changers and generators specially designed or prepared for the gas centrifuge process are controlled under Prescribe Equipment (0B)

N.B.2: "Software" specially designed to enhance or release the performance of frequency changers or generators to meet the characteristics below is controlled (see Item 4C).

a. Multiphase output providing a power of 40 VA or greater;

b. Operating at a frequency of 600 Hz or more; and

c. Frequency control better (less) than 0.2%.

Notes: 1. Item 4A011 only controls frequency changers intended for specific industrial machinery and/or consumer goods (machine tools, vehicles, etc.) if the frequency changers can meet the characteristics above when removed,

2. For the purpose of export control, the Government will determine whether or not a particular frequency changer meets the characteristics above, taking into account hardware and software constraints.

Technical Notes: 1. Frequency changers in Item 4A011. are also known as converters or inverters.

2. The characteristics specified in item 4A011 may be met by certain equipment marketed such as: Generators, Electronic Test Equipment, AC Power

Supplies, Variable Speed Motor Drives, Variable Speed Drives (VSDs), Variable Frequency Drives (VFDs), Adjustable Frequency Drives (AFDs), or Adjustable Speed Drives (ASDs).

4A012 Lasers, laser amplifiers and oscillators as follows:

a. Copper vapour lasers having both of the following characteristics:

1. Operating at wavelengths between 500 and 600 nm; and
2. An average output power equal to or greater than 40 W;

b. Argon ion lasers having both of the following characteristics:
1. Operating at wavelengths between 400 and 515 nm; and
2. An average output power greater than 40 W;

c. Neodymium-doped (other than glass) lasers with an output wavelength between 1000 and 1100 nm having either of the following:
1. Pulse-excited and Q-switched with a pulse duration equal to or greater than 1 ns, and having either of the following:

a. A single-transverse mode output with an average output power greater than 40 W; or

b. A multiple-transverse mode output with an average output power greater than 50 W;

or

2. Incorporating frequency doubling to give an output wavelength between 500 and 550 nm with an average output power of greater than 40 W;

d. Tuneable pulsed single-mode dye laser oscillators having all of the following characteristics:

1. Operating at wavelengths between 300 and 800 nm;
2. An average output power greater than 1 W;
3. A repetition rate greater than 1 kHz; and
4. Pulse width less than 100 ns;

e. Tuneable pulsed dye laser amplifiers and oscillators having all of the

following characteristics:

1. Operating at wavelengths between 300 and 800 nm;
2. An average output power greater than 30 W;
3. A repetition rate greater than 1 kHz; and
4. Pulse width less than 100 ns;

Note: Item 4A012e does not control single mode oscillators.

f. Alexandrite lasers having all of the following characteristics:

1. Operating at wavelengths between 720 and 800 nm;
2. A bandwidth of 0.005 nm or less;
3. A repetition rate greater than 125 Hz; and
4. An average output power greater than 30 W;

g. Pulsed carbon dioxide lasers having all of the following characteristics:

1. Operating at wavelengths between 9000 and 11000 nm;
2. A repetition rate greater than 250 Hz;
3. An average output power greater than 500 W; and
4. Pulse width of less than 200 ns;

Note: Item 4A012g does not control the higher power (typically 1 to 5 1kW) industrial CO_2 lasers used in applications such as cutting and welding, as these latter lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

h. Pulsed excimer lasers (XeF, XeCl, KrF) having all of the following characteristics:

1. Operating at wavelengths between 240 and 360 nm;
2. A repetition rate greater than 250 Hz; and
3. An average output power greater than 500 W;

i. Para-hydrogen Raman shifters designed to operate at 16 μm output wavelength and at a repetition rate greater than 250 Hz.

j. Pulsed carbon monoxide lasers having all of the following characteristics:

1. Operating at wavelengths between 5000 and 6000 nm;
2. A repetition rate greater than 250 Hz;

3. An average output power greater than 200 W; and
4. Pulse width of less than 200 ns.

Note: Item 4A012.j. does not control the higher power (typically 1 to 5 kW) industrial CO lasers used in applications such as cutting and welding, as these latter lasers are either continuous wave or are pulsed with a pulse width greater than 200 ns.

4A013 Valves having all of the following characteristics:

a. A nominal size of 5 mm or greater;
b. Having a bellows seal; and
c. Wholly made of or lined with aluminium, aluminium alloy, nickel, or nickel alloy containing more than 60% nickel by weight.

Technical Note: For valves with different inlet and outlet diameter, the nominal size parameter in Item 4A013a refers to the smallest diameter.

4A014 Superconducting solenoidal electromagnets having all of the following characteristics:

a. Capable of creating magnetic fields greater than 2 T;

b. A ratio of length to inner diameter greater than 2;
c. Inner diameter greater than 300 mm; and
d. Magnetic field uniform to better than 1% over the central 50% of the inner volume.

Note: Item 4A014 does not control magnets specially designed for and exported as part of medical nuclear magnetic resonance (NMR) imaging systems. ('As part of' does not necessarily mean physical part in the same shipment. Separate shipments from different sources are allowed, provided the related export documents clearly specify the 'as part of" relationship.)

4A015 High-power direct current power supplies having both of the following characteristics:

a. Capable of continuously producing, over a time period of 8 hours, 100 V

or greater with current output of 500 A or greater; and

b. Current or voltage stability better than 0.1% over a time period of 8 hours

4A016 High-voltage direct current power supplies having both of the following characteristics:

a. Capable of continuously producing, over a time period of 8 hours, 20 kV or greater with current output of 1 A or greater; and

b. Current or voltage stability better than 0.1% over a time period of 8 hours.

4A017 and All types of pressure transducers capable of measuring absolute pressures having all of the following characteristics:

a. Pressure sensing elements made of or protected by aluminium, aluminium alloy, aluminium oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers;

b. Seals, if any, essential for sealing the pressure sensing element, and in direct contact with the process medium, made of or protected by aluminium, aluminium alloy, aluminium oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers; and

c. Having either of the following characteristics:

1. A full scale of less than 13 kPa and an "accuracy" of better than ± 1% of full scale; or

2. A full scale of 13 kPa or greater and an "accuracy" of better than ± 130 Pa when measuring at 13 kPa.

Technical Notes: *1. In Item 4A017. pressure transducers are devices that convert pressure measurements into a signal.*

2. In Item 4A017. "accuracy" *includes non-linearity, hysteresis and repeatability at ambient temperature.*

4A018 Vacuum pumps having all of the following characteristics:

a. Input throat size equal to or greater than 380 mm;

b. Pumping speed equal to or greater than 15 m^3/s; and

c. Capable of producing an ultimate vacuum better than 13.3 mPa.

Technical Notes:

1. *The pumping speed is determined at the measurement point with nitrogen gas or air.*

2. *The ultimate vacuum is determined at the input of the pump with the input of the pump blocked off.*

4A019 Electrolytic cells for fluorine production with an output capacity greater than 250 g of fluorine per hour.

4A020 Rotor fabrication or assembly equipment, rotor straightening equipment, bellows-forming mandrels and dies, as follows:

a. Rotor assembly equipment for assembly of gas centrifuge rotor tube sections, baffles, and end caps; *Note:* Item 4A020a includes precision mandrels, clamps, and shrink fit machines.

b. Rotor straightening equipment for alignment of gas centrifuge rotor tube sections to a common axis;

Technical Note: In Item 4A020b such equipment normally consists of precision measuring probes linked to a computer that subsequently controls the action of, for example, pneumatic rams used for aligning the rotor tube sections.

c. Bellows-forming mandrels and dies for producing single -convolution bellows.

Technical Note: The bellows referred to in Item 4A020c have all of the following characteristics:

1. *Inside diameter between 75 and 400 mm;*

2. *Length equal to or greater than 12.7 mm;*
3. *Single convolution depth greater than 2 mm; and*
4. *Made of high-strength aluminium alloys, maraging steel, or high strength fibrous or filamentary materials.*

4A021 Centrifugal multi-plane balancing machines, fixed or portable, horizontal or vertical, as follows:

a. Centrifugal balancing machines designed for balancing flexible rotors having a length of 600 mm or more and having all of the following characteristics:
   1. Swing or journal diameter greater than 75 mm;
   2. Mass capability of from 0.9 to 23 kg; and
   3. Capable of balancing speed of revolution greater than 5000 rpm;

b. Centrifugal balancing machines designed for balancing hollow cylindrical rotor components and having all of the following characteristics:

   1. Journal diameter greater than 75 mm;
   2. Mass capability of from 0.9 to 23 kg;
   3. A minimum achievable residual specific unbalance equal to or less than 10 g-mm/kg per plane; and

   4. Belt drive type.

4A022 Filament winding machines and related equipment, as follows:

a. Filament winding machines as specified in 5A206; and having all of the following characteristics:

   1. Having motions for positioning, wrapping, and winding fibers coordinated and programmed in two or more axes;

   2. Specially designed to fabricate composite structures or laminates from "fibrous or filamentary materials"; and

   3. Capable of winding cylindrical tubes with an internal diameter between 75 and 650 mm and lengths of 300 mm or greater;

b. Coordinating and programming controls for the filament winding machines specified in Item 4A022a;

c. Precision mandrels for the filament winding machines specified in Item

4A022a.

4A023 Electromagnetic isotope separators designed for, or equipped with, single or multiple ion sources capable of providing a total ion beam current of 50 mA or greater.

Notes:

1. Item 4A023 includes separators capable of enriching stable isotopes as well as those for uranium. (A separator capable of separating the isotopes of lead with a one-mass unit difference is inherently capable of enriching the isotopes of uranium with a three-unit mass difference.)

2. Item 4A023 includes separators with the ion sources and collectors both in the magnetic field and those configurations in which they are external to the field.

Technical Note: A single 50 mA ion source cannot produce more than 3 g of separated highly enriched uranium (HEU) per year from natural abundance feed.

4A024 Mass spectrometers capable of measuring ions of 230 atomic mass units or greater and having a resolution of better than 2 parts in 230, as follows, and ion sources therefor:

N.B.: Mass spectrometers specially designed or prepared for analyzing on-line samples of uranium hexafluoride are controlled under Prescribed Equipment (0B Category).

a. Inductively coupled plasma mass spectrometers (ICP/MS);

b. Glow discharge mass spectrometers (GDMS);

c. Thermal ionization mass spectrometers (TIMS);

d. Electron bombardment mass spectrometers having both of the following features:

1. A molecular beam inlet system that injects a collimated beam of analyte molecules into a region of the ion source where the

molecules are ionized by an electron beam; and

2. One or more cold traps that can be cooled to a temperature of 193 K (-80 °C) or less in order to trap analyte molecules that are not ionized by the electron beam;

e. Mass spectrometers equipped with a microfluorination ion source designed for actinides or actinide fluorides.

Technical Notes:

1. *Item 4A024.d. describes mass spectrometers that are typically used for isotopic analysis of UF_6 gas samples.*
2. *Electron bombardment mass spectrometers in Item 4A024.d. are also known as electron impact mass spectrometers or electron ionization mass spectrometers.*
3. *In Item 4A024.d.2, a 'cold trap' is a device that traps gas molecules by condensing or freezing them on cold surfaces. For the purposes of this entry, a closed-loop gaseous helium cryogenic vacuum pump is not a cold trap.*

4A025 Specialized packings which may be used in separating heavy water from ordinary water, having both of the following characteristics:

a. Made of phosphor bronze mesh chemically treated to improve wettability; and

b. Designed to be used in vacuum distillation towers.

4A026 Pumps capable of circulating solutions of concentrated or dilute potassium amide catalyst in liquid ammonia (KNH_2/NH_3), having all of the following characteristics:

a. Airtight (i.e., hermetically sealed);

b. A capacity greater than 8.5 m_3/h; and

c. Either of the following characteristics:

1. For concentrated potassium amide solutions (1% or greater), an operating pressure of 1.5 to 60 MPa; or

2. For dilute potassium amide solutions (less than 1%), an operating pressure of 20 to 60 MPa.

4A027 Turboexpanders or turboexpander-compressor sets having both of the following characteristics:

a. Designed for operation with an outlet temperature of 35 K (- 238 ºC) or less; and

b. Designed for a throughput of hydrogen gas of 1000 kg/h or greater.

4A028 Water-hydrogen sulphide exchange tray columns and internal contactors, as follows:

N.B.: For columns which are specially designed or prepared for the production of heavy water, see Prescribed Equipment (0B002).

a. Water-hydrogen sulphide exchange tray columns, having all of the following characteristics:

1. Can operate at pressures of 2 MPa or greater;
2. Constructed of carbon steel having an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; and

3. With a diameter of 1.8 m or greater;

b. Internal contactors for the water-hydrogen sulphide exchange tray columns specified in Item 4A028a.

Technical Note: Internal contactors of the columns are segmented trays which have an effective assembled diameter of 1.8 m or greater; are designed to facilitate counter current contacting and are constructed of stainless steels with a carbon content of 0.03% or less. These may be sieve trays, valve trays, bubble cap trays or turbo grid trays.

4A029 Hydrogen-cryogenic distillation columns having all of the following characteristics:

a. Designed for operation at internal temperatures of 35 K (-238 ºC) or less;

b. Designed for operation at internal pressures of 0.5 to 5 MPa;

c. Constructed of either:

1. Stainless steel of the 300 series with low sulfur content and with an austenitic ASTM (or equivalent standard) grain size number of 5 or greater; or

2. Equivalent materials which are both cryogenic and H_2-compatible; and

d. With internal diameters of 30 cm or greater and 'effective lengths' of 4 m or greater.

Technical Note: *The term 'effective length' means the active height of packing material in a packed-type column, or the active height of internal contactor plates in a plate-type column.*

4A030 Bellows-sealed scroll-type compressors and bellows-sealed scroll-type vacuum pumps having all of the following characteristics:

a. Capable of an inlet volume flow rate of 50 m^3/h or greater;

b. Capable of a pressure ratio of 2:1 or greater; and

c. Having all surfaces that come in contact with the process gas made from any of the following materials:
1. Aluminium or aluminium alloy;
2. Aluminium oxide;

3. Stainless steel;
4. Nickel or nickel alloy;

5. Phosphor bronze; or
6. Fluoropolymers.

Technical Notes: *1. In a scroll compressor or vacuum pump, crescent-shaped pockets of gas are trapped between one or more pairs of intermeshed spiral vanes, or scrolls, one of which moves while the other remains stationary. The moving scroll orbits the stationary scroll; it does not rotate. As the moving scroll orbits the stationary scroll, the gas pockets diminish in size (i.e., they are compressed) as they move toward the*

outlet port of the machine.

2. *In a bellows-sealed scroll compressor or vacuum pump, the process gas is totally isolated from the lubricated parts of the pump and from the external atmosphere by a metal bellows. One end of the bellows is attached to the moving scroll and the other end is attached to the stationary housing of the pump.*

3. *Fluoropolymers include, but are not limited to, the following materials:*

   a. Polytetrafluoroethylene (PTFE),
   b. Fluorinated Ethylene Propylene (FEP),
   c. Perfluoroalkoxy (PFA),
   d. Polychlorotrifluoroethylene (PCTFE); and
   e. Vinylidene fluoride-hexafluoropropylene copolymer.

4A031 Industrial equipment including assemblies and components (other than those specified under Prescribed Equipment in 0B003.e) as follows:

a. High-density (lead glass or other) radiation shielding windows, having all of the following characteristics, and specially designed frames therefor:

   1. A 'cold area' greater than 0.09 m^2;

   2. A density greater than 3 g/cm^3; and

   3. A thickness of 100 mm or greater.

   Technical Note: In Item 4A031.a.1. the term 'cold area' means the viewing area of the window exposed to the lowest level of radiation in the design application.

b. Radiation-hardened TV cameras, or lenses therefor, specially designed or rated as radiation hardened to withstand a total radiation dose greater than 5×10^4 Gy (silicon) without operational degradation.

   Technical Note: The term Gy (silicon) refers to the energy in Joules per

kilogram absorbed by an unshielded silicon sample when exposed to ionizing radiation.

c. 'Robots', 'end-effectors' and control units as follows:

1. 'Robots' or 'end-effectors' having either of the following characteristics:

(a) Specially designed to comply with national safety standards applicable to handling high explosives (for example, meeting electrical code ratings for high explosives); or

(b) Specially designed or rated as radiation hardened to withstand a total radiation dose greater than 5×10^4 Gy (silicon) without operational degradation;

2. Control units specially designed for any of the 'robots' or 'end-effectors' specified in Item 4A031.c.1.

Note: Item 1.A.3. does not control 'robots' specially designed for non-nuclear industrial applications such as automobile paint-spraying booths.

Technical Notes:

1. '*Robots'*

In Item 4A031.c. 'robot' means a manipulation mechanism, which may be of the continuous path or of the point-to-point variety, may use "sensors", and has all of the following characteristics:

(a) is multifunctional;

(b) is capable of positioning or orienting material, parts, tools, or special devices through variable movements in three-dimensional space;

(c) incorporates three or more closed or open loop servo-devices which may include stepping motors; and

(d) *has "user-accessible programmability" by means of teach/playback method or by means of an electronic computer which may be a programmable logic controller, i.e., without mechanical intervention.*

N.B.1:

In the above definition "sensors" means detectors of a physical phenomenon, the output of which (after conversion into a signal that can be interpreted by a control unit) is able to generate "programs" or modify programmed instructions or numerical "program" data. This includes "sensors" with machine vision, infrared imaging, acoustical imaging, tactile feel, inertial position measuring, optical or acoustic ranging or force or torque measuring capabilities.

N.B.2:

In the above definition "user-accessible programmability" means the facility allowing a user to insert, modify or replace "programs" by means other than:

(a) a physical change in wiring or interconnections; or

(b) the setting of function controls including entry of parameters.

N.B.3:

The above definition does not include the following devices:

(a) Manipulation mechanisms which are only manually/teleoperator controllable;

(b) Fixed sequence manipulation mechanisms which are automated moving devices operating according to mechanically fixed programmed motions. The "program" is mechanically limited by fixed stops, such as pins or cams. The sequence of motions and the selection of paths or angles are not variable or changeable by mechanical, electronic, or electrical means;

(c) Mechanically controlled variable sequence manipulation mechanisms which are automated moving devices operating

according to mechanically fixed programmed motions. The "program" is mechanically limited by fixed, but adjustable, stops such as pins or cams. The sequence of motions and the selection of paths or angles are variable within the fixed "program" pattern. Variations or modifications of the "program" pattern (e.g., changes of pins or exchanges of cams) in one or more motion axes are accomplished only through mechanical operations;

(d) Non-servo-controlled variable sequence manipulation mechanisms which are automated moving devices, operating according to mechanically fixed programmed motions. The "program" is variable but the sequence proceeds only by the binary signal from mechanically fixed electrical binary devices or adjustable stops;

(e) Stacker cranes defined as Cartesian coordinate manipulator systems manufactured as an integral part of a vertical array of storage bins and designed to access the contents of those bins for storage or retrieval.

2. 'End-effectors'

In Item 4A031.c. 'end-effectors' are grippers, 'active tooling units', and any other tooling that is attached to the baseplate on the end of a 'robot' manipulator arm.

N.B.:

In the above definition 'active tooling units' is a device for applying motive power, process energy or sensing to the workpiece.

d. Remote manipulators that can be used to provide remote actions in radiochemical separation operations or hot cells, having either of the following characteristics:

1. A capability of penetrating 0.6 m or more of hot cell wall (through-the-wall operation); or

2. A capability of bridging over the top of a hot cell wall with a thickness of 0.6 m or more (over-the-wall operation).

Technical Note: Remote manipulators provide translation of human operator actions to a remote operating arm and terminal fixture. They may be of a master/slave type or operated by joystick or keypad.

4B Equipment, assemblies and components, including test and measurement equipment usable in development of nuclear explosive devices

4B001 Photomultiplier tubes having both of the following characteristics:

a. Photocathode area of greater than 20 cm^2; and

b. Anode pulse rise time of less than 1 ns.

4B002 Flash X-ray generators or pulsed electron accelerators having either of the following sets of characteristics:

a. 1. An accelerator peak electron energy of 500 keV or greater but less than 25 MeV; and

2. With a figure of merit (K) of 0.25 or greater; or

b. 1. An accelerator peak electron energy of 25 MeV or greater; and

2. A peak power greater than 50 MW.

Note: Item 4B002 does not control accelerators that are component parts of devices designed for purposes other than electron beam or X-ray radiation (electron microscopy, for example) nor those designed for medical purposes.

Technical Notes: *1. The figure of merit K is defined as:* $K=1.7 \times 10^3 V^{2.65}Q$. *V is the peak electron energy in million electron volts. If the accelerator beam pulse duration is less than or equal to 1μs, then Q is the total accelerated charge in Coulombs. If the accelerator beam pulse duration is greater than 1 μs, then Q is the maximum accelerated charge in 1 μs. Q equals the integral of i with respect to t, over the lesser of 1 μs or the time duration of the beam pulse ($Q=\int idt$) where i is beam current in amperes and t is the time in seconds.*

2. Peak power = (peak potential in volts) x *(peak beam*

current in amperes).

3. *In machines based on microwave accelerating cavities, the time duration of the beam pulse is the lesser of 1 μs or the duration of the bunched beam packet resulting from one microwave modulator pulse.*

4. *In machines based on microwave accelerating cavities, the peak beam current is the average current in the time duration of a bunched beam packet.*

4B003 High-velocity gun systems (propellant, gas, coil, electromagnetic, and electrothermal types, and other advanced systems) capable of accelerating projectiles to 1.5 km/s or greater.

Note: This item does not control guns specially designed for high velocity weapon systems.

4B004 High-speed cameras and imaging devices and components therefor, as follows:

N.B.: "Software" specially designed to enhance or release the performance of cameras or imaging devices to meet the characteristics below is controlled (See Item 4C).

a. Streak cameras, and specially designed components therefor, as follows:

1. Streak cameras with writing speeds greater than 0.5 mm/μs;

2. Electronic streak cameras capable of 50 ns or less time resolution;

3. Streak tubes for cameras specified in 4B004.a.2.;

4. Plug-ins specially designed for use with streak cameras which have modular structures and that enable the performance specifications in 4B004.a.1 or 4B004.a.2.;

5. Synchronizing electronics units, rotor assemblies consisting of turbines, mirrors and bearings specially designed for cameras specified in 4B004.a.1.

b. Framing cameras and specially designed components therefor as follows:

1. Framing cameras with recording rates greater than 225,000 frames per second;

2. Framing cameras capable of 50 ns or less frame exposure time;

3. Framing tubes and solid-state imaging devices having a fast image gating (shutter) time of 50ns or less specially designed for cameras specified in 4B004.b.1 or 4B004.b.2.;

4. Plug-ins specially designed for use with framing cameras which have modular structures and that enable the performance specifications in 4B004.b.1 or 4B004.b.2.;

5. Synchronizing electronics units, rotor assemblies consisting of turbines, mirrors and bearings specially designed for cameras specified in 4B004.b.1 or 4B004.b.2.

c. Solid state or electron tube cameras and specially designed components therefor as follows:

1. Solid-state cameras or electron tube cameras with a fast image gating (shutter) time of 50 ns or less;

2. Solid-state imaging devices and image intensifiers tubes having a fast image gating (shutter) time of 50 ns or less specially designed for cameras specified in 4B004.c.1.;

3. Electro-optical shuttering devices (Kerr or Pockels cells) with a fast image gating (shutter) time of 50 ns or less;

4. Plug-ins specially designed for use with cameras which have modular structures and that enable the performance specifications in 4B004.c.1.

Technical Note: High speed single frame cameras can be used alone to produce a single image of a dynamic event, or several such cameras can be combined in a sequentially-triggered system to produce multiple images of an event.

4B005 High explosive containment vessels, chambers, containers and other similar containment devices designed for the testing of high explosives or explosive devices and having both of the following characteristics:

a. Designed to fully contain an explosion equivalent to 2 kg of TNT or greater; and
b. Having design elements or features enabling real time or delayed transfer of diagnostic or measurement information.

4B006 Specialized instrumentation for hydrodynamic experiments, as follows:

a. Velocity interferometers for measuring velocities exceeding 1 km/s during time intervals of less than 10 μs;

b. Shock pressure gauges capable of measuring pressures greater than 10 GPa, including gauges made with manganin, ytterbium, and polyvinylidene bifluoride (PVBF, PVF_2);

c. Quartz pressure transducers for pressures greater than 10 GPa.

Note: Item 4B006.a. includes velocity interferometers such as VISARs (Velocity Interferometer Systems for Any Reflector), DLIs (Doppler Laser Interferometers) and PDV (Photonic Doppler Velocimeters) also known as Het-V (Heterodyne Velocimeters).

4B007 High-speed pulse generators, and pulse heads therefor, having both of the following characteristics:

a. Output voltage greater than 6 V into a resistive load of less than 55 ohms; and

b. 'Pulse transition time' less than 500 ps.

Technical Notes:

1. *In Item 4B007.b. 'pulse transition time' is defined as the time interval between 10% and 90% voltage amplitude.*

2. *Pulse heads are impulse forming networks designed to accept a voltage step function and shape it into a variety of pulse forms that can include rectangular, triangular, step, impulse, exponential, or monocycle types. Pulse heads can be an integral part of the pulse generator, they can be a plug-in module to the device or they can be an externally connected device.*

4B008 Detonators and multipoint initiation systems, as follows:

a. Electrically driven explosive detonators, as follows:

1. Exploding bridge (EB);

2. Exploding bridge wire (EBW);

3. Slapper;

4. Exploding foil initiators (EFI);

b. Arrangements using single or multiple detonators designed to nearly simultaneously initiate an explosive surface over an area greater than 5000 mm^2 from a single firing signal with an initiation timing spread over the surface of less than 2.5 μs.

Note: Item 4B008. does not control detonators using only primary explosives, such as lead azide.

Technical Note:

In Item 4B008. the detonators of concern all utilize a small electrical conductor (bridge, bridge wire, or foil) that explosively vaporizes when a fast, high-current electrical pulse is passed through it. In nonslapper types,the exploding conductor starts a chemical detonation in a contacting high-explosive material such as PETN (pentaerythritoltetranitrate). In slapper detonators, the explosive vaporization of the electrical conductor drives a flyer or slapper across a gap, and the impact of the slapper on an explosive starts a chemical detonation. The slapper in some designs is driven by magnetic force. The term exploding foil detonator may refer to either an EB or a slapper-type detonator. Also, the word initiator is sometimes used in place of the word detonator.

4B009 Firing sets and equivalent high-current pulse generators, as follows:

a. Detonator firing sets (initiation systems, firesets), including electronically-charged, explosively-driven and optically-driven firing sets designed to drive multiple controlled detonators specified by Item 4B008 above;

b. Modular electrical pulse generators (pulsers) having all of the following

characteristics:

1. Designed for portable, mobile, or ruggedized-use;

2. Capable of delivering their energy in less than 15 μs into loads of less than 40 ohms;

3. Having an output greater than 100 A;

4. No dimension greater than 30 cm;

5. Weight less than 30 kg ; and

6. Specified to operate over an extended temperature range of 223 to 373 K (-50 ºC to 100 ºC) or specified as suitable for aerospace applications.

c. Micro-firing units having all of the following characteristics:

1. No dimension greater than 35 mm;

2. Voltage rating of equal to or greater than 1 kV; and

3. Capacitance of equal to or greater than 100 nF.

Note: Optically driven firing sets include both those employing laser initiation and laser charging. Explosively-driven firing sets include both explosive ferroelectric and explosive ferromagnetic firing set types. Item 4B009.b. includes xenon flashlamp drivers.

4B010 Switching devices as follows:

a. Cold-cathode tubes, whether gas filled or not, operating similarly to a spark gap, having all of the following characteristics:

1. Containing three or more electrodes;

2. Anode peak voltage rating of 2.5 kV or more;

3. Anode peak current rating of 100 A or more; and

4. Anode delay time of 10 μs or less;

Note: Item 4B010.a. includes gas krytron tubes and vacuum sprytron tubes.

b. Triggered spark-gaps having both of the following characteristics:

1. Anode delay time of 15 μs or less; and

2. Rated for a peak current of 500 A or more;

c. Modules or assemblies with a fast switching function having all of the following characteristics:

1. Anode peak voltage rating greater than 2 kV;

2. Anode peak current rating of 500 A or more; and

3. Turn-on time of 1 μs or less.

4B011 Pulse discharge capacitors having either of the following sets of characteristics:

a. 1. Voltage rating greater than 1.4 kV;

2. Energy storage greater than 10 J;

3. Capacitance greater than 0.5 μF; and

4. Series inductance less than 50 nH; or

b. 1. Voltage rating greater than 750 V;
2. Capacitance greater than 0.25 μF; and

3. Series inductance less than 10 nH.

4B012 Neutron generator systems, including tubes, having both of the following characteristics:

a. Designed for operation without an external vacuum system; and

b. 1. Utilizing electrostatic acceleration to induce a tritium-deuterium

nuclear reaction; or

2. Utilizing electrostatic acceleration to induce a deuterium-deuterium nuclear reaction and capable of an

Output of 3 x 10^9 neutrons/s or greater.

4B013 Striplines to provide low inductance path to detonators with the following characteristics:

a. Voltage rating greater than 2 kV; and
b. Inductance of less than 20 nH

4C Technology and Software

Technology and software for the development, production or use of items specified in 4A or 4B. ’

3. **Purpose of this notification**: Amendments/additions to Categories 0, 3 & 4 of SCOMET list [Appendix 3 to Schedule 2 of ITC(HS) Classification of Export & Import Items] have been notified.

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Director General of Foreign Trade
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THE CUSTOMS ACT, 1962 (52 of 1962)

CHAPTER XIII

Searches, seizure and arrest

SECTION 100. Power to search suspected persons entering or leaving India, etc. – (1) If the proper officer has reason to believe that any person to whom this section applies has secreted about his person, any goods liable to confiscation or any documents relating thereto, he may search that person.

(2)This section applies to the following persons, namely : –

(a) any person who has landed from or is about to board, or is on board any vessel within the Indian customs waters;

(b) any person who has landed from or is about to board, or is on board a foreign-going aircraft;

(c) any person who has got out of, or is about to get into, or is in, a vehicle, which has arrived from, or is to proceed to any place outside India;

(d) any person not included in clauses (a), (b) or (c) who has entered or is about to leave India;

(e) any person in a customs area.

SECTION 101. Power to search suspected persons in certain other cases. – (1) Without prejudice to the provisions of section 100, if an officer of customs empowered in this behalf by general or special order of the Commissioner of Customs, has reason to believe that any person has secreted about his person any goods of the description specified in sub-section (2) which are liable to confiscation, or documents relating thereto, he may search that person.

(2) The goods referred to in sub-section (1) are the following : –
(a) gold;
(b) diamonds;
(c) manufactures of gold or diamonds;
(d) watches;
(e) any other class of goods which the Central Government may, by notification in the Official Gazette, specify.

SECTION 102. Persons to be searched may require to be taken before gazetted officer of customs or magistrate. – (1) When any officer of customs is about to search any person under the provisions of section 100 or section 101, the officer of customs shall, if such person so requires, take him without unnecessary delay to the nearest gazetted officer of customs or magistrate.

(2) If such requisition is made, the officer of customs may detain the person making it until he can bring him before the gazetted officer of customs or the magistrate.

(3) The gazetted officer of customs or the magistrate before whom any such person is brought shall, if he sees no reasonable ground for search, forthwith discharge the person but otherwise shall direct that search be made.

(4) Before making a search under the provisions of section 100 or section 101, the officer of customs shall call upon two or more persons to attend and witness the search and may issue an order in writing to them or any of them so to do; and the search shall be made in the presence of such persons and a list of all things seized in the course of such search shall be prepared by such officer or other person and signed by such witnesses.

(5) No female shall be searched by any one excepting a female.

SECTION 103. Power to screen or X-ray bodies of suspected persons for detecting secreted goods. – (1) Where the proper officer has reason to believe that any person referred to in sub-section (2) of section 100 has any goods liable to confiscation secreted inside his body, he may detain such person and produce him without unnecessary delay before the nearest magistrate.

(2) A magistrate before whom any person is brought under sub-section (1) shall, if he sees no reasonable ground for believing that such person has any such goods secreted inside his body, forthwith discharge such person.

(3) Where any such magistrate has reasonable ground for believing that such person has any such goods secreted inside his body and the magistrate is satisfied that for the purpose of discovering such goods it is necessary to have the body of such person screened or X-rayed, he may make an order to that effect.

(4) Where a magistrate has made any order under sub-section (3), in relation to any person, the proper officer shall, as soon as practicable, take such person before a radiologist possessing qualifications recognized by the Central Government for the purpose of this section, and such person shall allow the radiologist to screen or X-ray his body.

(5) A radiologist before whom any person is brought under sub-section (4) shall, after screening or X-raying the body of such person, forward his report, together with any X-ray pictures taken by him, to the magistrate without unnecessary delay.

(6) Where on receipt of a report from a radiologist under sub-section (5) or otherwise, the magistrate is satisfied that any person has any goods liable to confiscation secreted inside his body, he may direct that suitable action for bringing out such goods be taken on the advice and under the supervision of a registered medical practitioner and such person shall be bound to comply with such direction:

Provided that in the case of a female no such action shall be taken except on the advice and under the supervision of a female registered medical practitioner.

(7) Where any person is brought before a magistrate under this section, such magistrate may for the purpose of enforcing the provisions of this section order such person to be kept in such custody and for such period as he may direct.

(8) Nothing in this section shall apply to any person referred to in sub-section (1), who admits that goods liable to confiscation are secreted inside his body, and who voluntarily submits himself for suitable action being taken for bringing out such goods.

Explanation. - For the purposes of this section, the expression "registered medical practitioner" means any person who holds a qualification granted by an authority specified in the Schedule to the Indian Medical Degrees Act, 1916 (7 of 1916), or notified under section 3 of that Act, or by an authority specified in any of the Schedules to the Indian Medical Council Act, 1956 (102 of 1956).

SECTION 104. Power to arrest. – (1) If an officer of customs empowered in this behalf by general or special order of the Commissioner of Customs has reason to believe that any person in India or within the Indian customs waters has committed an offence punishable under section 132 or section 133 or section 135 or section 135A or section 136, he may arrest such person and shall, as soon as may be, inform him of the grounds for such arrest.

(2) Every person arrested under sub-section (1) shall, without unnecessary delay, be taken to a magistrate.

(3) Where an officer of customs has arrested any person under sub-section (1), he shall, for the purpose of releasing such person on bail or otherwise, have the same powers and be subject to the same provisions as the officer-in-charge of a police-station has and is subject to under the Code of Criminal Procedure, 1898 (5 of 1898).

(4) Notwithstanding anything contained in the Code of Criminal Procedure, 1898 (5 of 1898), an offence under this Act shall not be cognizable.

SECTION 105. Power to search premises. – (1) If the Assistant Commissioner of Customs or Deputy Commissioner of Customs, or in any area adjoining the land frontier or the coast of India an officer of customs specially empowered by name in this behalf by the Board, has reason to believe that any goods liable to confiscation, or any documents or things which in his opinion will be useful for or relevant to any proceeding under this Act, are secreted in any place, he may authorise any officer of customs to search or may himself search for such goods, documents or things.

(2)The provisions of the Code of Criminal Procedure, 1898 (5 of 1898), relating to searches shall, so far as may be, apply to searches under this section subject to the modification that sub-section (5) of section 165 of the said Code shall have effect as if for the word "Magistrate", wherever it occurs, the words Commissioner of Customs were substituted.

SECTION 106. Power to stop and search conveyances. – (1) Where the proper officer has reason to believe that any aircraft, vehicle or animal in India or any vessel in India or within the Indian customs waters has been, is being, or is about to be, used in the smuggling of any goods or in the carriage of any goods which have been smuggled, he may at any time stop any such vehicle, animal or vessel or, in the case of an aircraft, compel it to land, and –

(a) rummage and search any part of the aircraft, vehicle or vessel;
(b) examine and search any goods in the aircraft, vehicle or vessel or on the animal;
(c) break open the lock of any door or package for exercising the powers conferred by clauses (a) and (b), if the keys are withheld.

(2) Where for the purposes of sub-section (1) –

(a) it becomes necessary to stop any vessel or compel any aircraft to land, it shall be lawful for any vessel or aircraft in the service of the Government while flying her proper flag and any authority authorised in this behalf by the Central Government to summon such vessel to stop or the aircraft to land, by means of an international signal, code or other recognized means, and thereupon, such vessel shall forthwith stop or such aircraft shall forthwith land; and if it fails to do so, chase may be given thereto by any vessel or aircraft as aforesaid and if after a gun is fired as a signal the vessel fails to stop or the aircraft fails to land, it may be fired upon;

(b) it becomes necessary to stop any vehicle or animal, the proper officer may use all lawful means for stopping it, and where such means fail, the vehicle or animal may be fired upon.

SECTION 106A. Power to inspect. – Any proper officer authorised in this behalf by the Commissioner of Customs may, for the purpose of ascertaining whether or not the requirements of this Act have been complied with, at any reasonable time, enter any place intimated under Chapter IVA or Chapter IVB, as the case may be, and inspect the goods kept or stored therein and require any person found therein, who is for the time being in charge thereof, to produce to him for his inspection the accounts maintained under the said Chapter IVA or Chapter IVB, as the case may be, and to furnish to him such other information as he may reasonably require for the purpose of ascertaining whether or not such goods have been illegally imported, exported or are likely to be illegally exported.

SECTION 107. Power to examine persons. – Any officer of customs empowered in this behalf by general or special order of the Commissioner of Customs may, during the course of any enquiry in connection with the smuggling of any goods, -

(a) require any person to produce or deliver any document or thing relevant to the enquiry;
(b) examine any person acquainted with the facts and circumstances of the case.

SECTION 108. Power to summon persons to give evidence and produce documents. – (1) Any Gazetted Officer of customs shall have power to summon any person whose attendance he considers necessary either to give evidence or to produce a document or any other thing in any inquiry which such officer is making under this Act.

(2) A summons to produce documents or other things may be for the production of certain specified documents or things or for the production of all documents or things of a certain description in the possession or under the control of the person summoned.

(3) All persons so summoned shall be bound to attend either in person or by an authorised agent, as such officer may direct; and all persons so summoned shall be bound to state the truth upon any subject respecting which they are examined or make statements and produce such documents and other things as may be required :

Provided that the exemption under section 132 of the Code of Civil Procedure, 1908 (5 of 1908), shall be applicable to any requisition for attendance under this section.

(4) Every such inquiry as aforesaid shall be deemed to be a judicial proceeding within the meaning of section 193 and section 228 of the Indian Penal Code, 1860 (45 of 1860).

SECTION 109. Power to require production of order permitting clearance of goods imported by land. – Any officer of customs appointed for any area adjoining the land frontier of India and empowered in this behalf by general or special order of the Board, may require any person in possession of any goods which such officer has reason to believe to have been imported into India by land, to produce the order made under section 47 permitting clearance of the goods:

Provided that nothing in this section shall apply to any imported goods passing from a land frontier to a land customs station by a route appointed under clause (c) of section 7.

SECTION 110. Seizure of goods, documents and things. – (1) If the proper officer has reason to believe that any goods are liable to confiscation under this Act, he may seize such goods:

Provided that where it is not practicable to seize any such goods, the proper officer may serve on the owner of the goods an order that he shall not remove, part with, or otherwise deal with the goods except with the previous permission of such officer.

(1A) The Central Government may, having regard to the perishable or hazardous nature of any goods, depreciation in the value of the goods with the passage of time, constraints of storage space for the goods or any other relevant considerations, by notification in the Official Gazette, specify the goods or class of goods which shall, as soon as may be after its seizure under sub-section (1), be disposed of by the proper officer in such manner as the Central Government may, from time to time, determine after following the procedure hereinafter specified.

(1B) Where any goods, being goods specified under sub-section (1A), have been seized by a proper officer under sub-section (1), he shall prepare an inventory of such goods containing such details relating to their description, quality, quantity, mark, numbers, country of origin and other particulars as the proper officer may consider relevant to the identity of the goods in any proceedings under this Act and shall make an application to a Magistrate for the purpose of –

(a) certifying the correctness of the inventory so prepared; or

(b) taking, in the presence of the Magistrate, photographs of such goods, and certifying such photographs as true; or

(c) allowing to draw representative samples of such goods, in the presence of the Magistrate, and certifying the correctness of any list of samples so drawn.

(1C) Where an application is made under sub-section (1B), the Magistrate shall, as soon as may be, allow the application.

(2) Where any goods are seized under sub-section (1) and no notice in respect thereof is given under clause (a) of section 124 within six months of the seizure of the goods, the goods shall be returned to the person from whose possession they were seized :

Provided that the aforesaid period of six months may, on sufficient cause being shown, be extended by the Commissioner of Customs for a period not exceeding six months.

(3) The proper officer may seize any documents or things which, in his opinion, will be useful for, or relevant to, any proceeding under this Act.

(4) The person from whose custody any documents are seized under sub-section (3) shall be entitled to make copies thereof or take extracts there from in the presence of an officer of customs.

SECTION 110A. Provisional release of goods, documents and things seized pending adjudication. - Any goods, documents or things seized under section 110, may, pending the order of the adjudicating authority, be released to the owner on taking a bond from him in the proper form with such security and conditions as the adjudicating authority may require.

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THE CUSTOMS ACT, 1962 (52 of 1962)

CHAPTER XIV

Confiscation of goods and conveyances and imposition of penalties

SECTION 111. Confiscation of improperly imported goods, etc. – The following goods brought from a place outside India shall be liable to confiscation: –

(a) any goods imported by sea or air which are unloaded or attempted to be unloaded at any place other than a customs port or customs airport appointed under clause (a) of section 7 for the unloading of such goods;

(b) any goods imported by land or inland water through any route other than a route specified in a notification issued under clause (c) of section 7 for the import of such goods;

(c) any dutiable or prohibited goods brought into any bay, gulf, creek or tidal river for the purpose of being landed at a place other than a customs port;

(d) any goods which are imported or attempted to be imported or are brought within the Indian customs waters for the purpose of being imported, contrary to any prohibition imposed by or under this Act or any other law for the time being in force;

(e) any dutiable or prohibited goods found concealed in any manner in any conveyance;

(f) any dutiable or prohibited goods required to be mentioned under the regulations in an import manifest or import report which are not so mentioned;

(g) any dutiable or prohibited goods which are unloaded from a conveyance in contravention of the provisions of section 32, other than goods inadvertently unloaded but included in the record kept under sub-section (2) of section 45;

(h) any dutiable or prohibited goods unloaded or attempted to be unloaded in contravention of the provisions of section 33 or section 34;

(i) any dutiable or prohibited goods found concealed in any manner in any package either before or after the unloading thereof;

(j) any dutiable or prohibited goods removed or attempted to be removed from a customs area or a warehouse without the permission of the proper officer or contrary to the terms of such permission;

(k) any dutiable or prohibited goods imported by land in respect of which the order permitting clearance of the goods required to be produced under section 109 is not produced or which do not correspond in any material particular with the specification contained therein;

(l) any dutiable or prohibited goods which are not included or are in excess of those included in the entry made under this Act, or in the case of baggage in the declaration made under section 77;

(m) any goods which do not correspond in respect of value or in any other particular with the entry made under this Act or in the case of baggage with the declaration made under section 77 in respect thereof, or in the case of goods under transhipment, with the declaration for transhipment referred to in the proviso to sub-section (1) of section 54;

(n) any dutiable or prohibited goods transited with or without transhipment or attempted to be so transited in contravention of the provisions of Chapter VIII;

(o) any goods exempted, subject to any condition, from duty or any prohibition in respect of the import thereof under this Act or any other law for the time being in force, in respect of which the condition is not observed unless the non-observance of the condition was sanctioned by the proper officer;

(p) any notified goods in relation to which any provisions of Chapter IVA or of any rule

made under this Act for carrying out the purposes of that Chapter have been contravened.

SECTION 112. Penalty for improper importation of goods, etc. – Any person, -

(a) who, in relation to any goods, does or omits to do any act which act or omission would render such goods liable to confiscation under section 111, or abets the doing or omission of such an act, or

(b) who acquires possession of or is in any way concerned in carrying, removing, depositing, harbouring, keeping, concealing, selling or purchasing, or in any other manner dealing with any goods which he knows or has reason to believe are liable to confiscation under section 111, shall be liable, -

(i) in the case of goods in respect of which any prohibition is in force under this Act or any other law for the time being in force, to a penalty not exceeding the value of the goods or five thousand rupees, whichever is the greater;

(ii) in the case of dutiable goods, other than prohibited goods, to a penalty not exceeding the duty sought to be evaded on such goods or five thousand rupees, whichever is the greater;

(iii) in the case of goods in respect of which the value stated in the entry made under this Act or in the case of baggage, in the declaration made under section 77 (in either case hereafter in this section referred to as the declared value) is higher than the value thereof, to a penalty not exceeding the difference between the declared value and the value thereof or five thousand rupees, whichever is the greater;

(iv) in the case of goods falling both under clauses (i) and (iii), to a penalty not exceeding the value of the goods or the difference between the declared value and the value thereof or five thousand rupees, whichever is the highest;

(v) in the case of goods falling both under clauses (ii) and (iii), to a penalty not exceeding the duty sought to be evaded on such goods or the difference between the declared value and the value thereof or five thousand rupees, whichever is the highest.

SECTION 113. Confiscation of goods attempted to be improperly exported, etc. – The following export goods shall be liable to confiscation:-

(a) any goods attempted to be exported by sea or air from any place other than a customs port or a customs airport appointed for the loading of such goods;

(b) any goods attempted to be exported by land or inland water through any route other than a route specified in a notification issued under clause (c) of section 7 for the export of such goods;

(c) any goods brought near the land frontier or the coast of India or near any bay, gulf, creek or tidal river for the purpose of being exported from a place other than a land customs station or a customs port appointed for the loading of such goods;

(d) any goods attempted to be exported or brought within the limits of any customs area for the purpose of being exported, contrary to any prohibition imposed by or under this Act or any other law for the time being in force;

(e) any goods found concealed in a package which is brought within the limits of a customs area for the purpose of exportation;

(f) any goods which are loaded or attempted to be loaded in contravention of the provisions of section 33 or section 34;

(g) any goods loaded or attempted to be loaded on any conveyance, or water-borne, or attempted to be water-borne for being loaded on any vessel, the eventual destination of which is a place outside India, without the permission of the proper officer;

(h) any goods which are not included or are in excess of those included in the entry made under this Act, or in the case of baggage in the declaration made under section 77;

(i) any goods entered for exportation which do not correspond in respect of value or in

any material particular with the entry made under this Act or in the case of baggage with the declaration made under section 77;

(ii) any goods entered for exportation under claim for drawback which do not correspond in any material particular with any information furnished by the exporter or manufacturer under this Act in relation to the fixation of rate of drawback under section 75;

(j) any goods on which import duty has not been paid and which are entered for exportation under a claim for drawback under section 74;

(k) any goods cleared for exportation which are not loaded for exportation on account of any willful act, negligence or default of the exporter, his agent or employee, or which after having been loaded for exportation are unloaded without the permission of the proper officer;

(l) any specified goods in relation to which any provisions of Chapter IVB or of any rule made under this Act for carrying out the purposes of that Chapter have been contravened.

SECTION 114. Penalty for attempt to export goods improperly, etc. – Any person who, in relation to any goods, does or omits to do any act which act or omission would render such goods liable to confiscation under section 113, or abets the doing or omission of such an act, shall be liable, -

(i) in the case of goods in respect of which any prohibition is in force under this Act or any other law for the time being in force, to a penalty not exceeding three times the value of the goods as declared by the exporter or the value as determined under this Act, whichever is the greater;

(ii) in the case of dutiable goods, other than prohibited goods, to a penalty not exceeding the duty sought to be evaded or five thousand rupees, whichever is the greater;

(iii) in the case of any other goods, to a penalty not exceeding the value of the goods, as declared by the exporter or the value as determined under this Act, whichever is the greater.

SECTION 114A. Penalty for short-levy or non-levy of duty in certain cases. - Where the duty has not been levied or has been short-levied or the interest has not been charged or paid or has been part paid or the duty or interest has been erroneously refunded by reason of collusion or any wilful mis-statement or suppression of facts, the person who is liable to pay the duty or interest, as the case may be, as determined under sub-section (8) of section 28 shall also be liable to pay a penalty equal to the duty or interest so determined :

Provided that where such duty or interest, as the case may be, as determined under sub-section (8) of section 28, and the interest payable thereon under section 28AA, is paid within thirty days from the date of the communication of the order of the proper officer determining such duty, the amount of penalty liable to be paid by such person under this section shall be twenty-five per cent of the duty or interest, as the case may be, so determined :

Provided further that the benefit of reduced penalty under the first proviso shall be available subject to the condition that the amount of penalty so determined has also been paid within the period of thirty days referred to in that proviso :

Provided also that where the duty or interest determined to be payable is reduced or increased by the Commissioner (Appeals), the Appellate Tribunal or, as the case may be, the court, then, for the purposes of this section, the duty or interest as reduced or increased, as the case may be, shall be taken into account :

Provided also that in case where the duty or interest determined to be payable is increased by the Commissioner (Appeals), the Appellate Tribunal or, as the case may be, the court, then, the benefit of reduced penalty under the first proviso shall be available if the amount of the duty or the interest so increased, along with the interest payable thereon under section 28AA, and twenty-five percent of the consequential increase in penalty have

also been paid within thirty days of the communication of the order by which such increase in the duty or interest takes effect :

Provided also that where any penalty has been levied under this section, no penalty shall be levied under section 112 or section 114.

Explanation. - For the removal of doubts, it is hereby declared that –

(i) the provisions of this section shall also apply to cases in which the order determining the duty or interest under sub-section (8) of section 28 relates to notices issued prior to the date on which the Finance Act, 2000 receives the assent of the President;
(ii) any amount paid to the credit of the Central Government prior to the date of communication of the order referred to in the first proviso or the fourth proviso shall be adjusted against the total amount due from such person.

SECTION 114AA. Penalty for use of false and incorrect material. - If a person knowingly or intentionally makes, signs or uses, or causes to be made, signed or used, any declaration, statement or document which is false or incorrect in any material particular, in the transaction of any business for the purposes of this Act, shall be liable to a penalty not exceeding five times the value of goods.

SECTION 115. Confiscation of conveyances. – (1) The following conveyances shall be liable to confiscation :-

(a) any vessel which is or has been within the Indian customs waters, any aircraft which is or has been in India, or any vehicle which is or has been in a customs area, while constructed, adapted, altered or fitted in any manner for the purpose of concealing goods;

(b) any conveyance from which the whole or any part of the goods is thrown overboard, staved or destroyed so as to prevent seizure by an officer of customs;

(c) any conveyance which having been required to stop or land under section 106 fails to do so, except for good and sufficient cause;

(d) any conveyance from which any warehoused goods cleared for exportation, or any other goods cleared for exportation under a claim for drawback, are unloaded, without the permission of the proper officer;

(e) any conveyance carrying imported goods which has entered India and is afterwards found with the whole or substantial portion of such goods missing, unless the master of the vessel or aircraft is able to account for the loss of, or deficiency in, the goods.

(2) Any conveyance or animal used as a means of transport in the smuggling of any goods or in the carriage of any smuggled goods shall be liable to confiscation, unless the owner of the conveyance or animal proves that it was so used without the knowledge or connivance of the owner himself, his agent, if any, and the person in charge of the conveyance or animal:

Provided that where any such conveyance is used for the carriage of goods or passengers for hire, the owner of any conveyance shall be given an option to pay in lieu of the confiscation of the conveyance a fine not exceeding the market price of the goods which are sought to be smuggled or the smuggled goods, as the case may be.

Explanation. - In this section, “market price” means market price at the date when the goods are seized.

SECTION 116. Penalty for not accounting for goods. – If any goods loaded in a conveyance for importation into India, or any goods transhipped under the provisions of this Act or coastal goods carried in a conveyance, are not unloaded at their place of destination in India, or if the quantity unloaded is short of the quantity to be unloaded at that destination, and if the failure to unload or the deficiency is not accounted for to the satisfaction of the Assistant Commissioner of Customs or Deputy Commissioner of Customs, the person-in-charge of the conveyance shall be liable, -

(a) in the case of goods loaded in a conveyance for importation into India or goods

transhipped under the provisions of this Act, to a penalty not exceeding twice the amount of duty that would have been chargeable on the goods not unloaded or the deficient goods, as the case may be, had such goods been imported;

(b) in the case of coastal goods, to a penalty not exceeding twice the amount of export duty that would have been chargeable on the goods not unloaded or the deficient goods, as the case may be, had such goods been exported.

SECTION 117. Penalties for contravention, etc., not expressly mentioned. – Any person who contravenes any provision of this Act or abets any such contravention or who fails to comply with any provision of this Act with which it was his duty to comply, where no express penalty is elsewhere provided for such contravention or failure, shall be liable to a penalty not exceeding one lakh rupees.

SECTION 118. Confiscation of packages and their contents. – (a) Where any goods imported in a package are liable to confiscation, the package and any other goods imported in that package shall also be liable to confiscation.

(b) Where any goods are brought in a package within the limits of a customs area for the purpose of exportation and are liable to confiscation, the package and any other goods contained therein shall also be liable to confiscation.

SECTION 119. Confiscation of goods used for concealing smuggled goods. – Any goods used for concealing smuggled goods shall also be liable to confiscation.

Explanation. - In this section, "goods" does not include a conveyance used as a means of transport.

SECTION 120. Confiscation of smuggled goods notwithstanding any change in form, etc. – (1) Smuggled goods may be confiscated notwithstanding any change in their form.

(2) Where smuggled goods are mixed with other goods in such manner that the smuggled goods cannot be separated from such other goods, the whole of the goods shall be liable to confiscation :

Provided that where the owner of such goods proves that he had no knowledge or reason to believe that they included any smuggled goods, only such part of the goods the value of which is equal to the value of the smuggled goods shall be liable to confiscation.

SECTION 121. Confiscation of sale-proceeds of smuggled goods. – Where any smuggled goods are sold by a person having knowledge or reason to believe that the goods are smuggled goods, the sale-proceeds thereof shall be liable to confiscation.

SECTION 122. Adjudication of confiscations and penalties. – In every case under this Chapter in which anything is liable to confiscation or any person is liable to a penalty, such confiscation or penalty may be adjudged, -

(a) without limit, by a Commissioner of Customs or a Joint Commissioner of Customs;

(b) where the value of the goods liable to confiscation does not exceed two lakh rupees, by an Assistant Commissioner of Customs or Deputy Commissioner of Customs;

(c) where the value of the goods liable to confiscation does not exceed, ten thousand rupees, by a Gazetted Officer of Customs lower in rank than an Assistant Commissioner of Customs or Deputy Commissioner of Customs.

SECTION 122A. Adjudication Procedure. — (1) The adjudicating authority shall, in any proceeding under this Chapter or any other provision of this Act, give an opportunity of being heard to a party in a proceeding, if the party so desires.

(2) The adjudicating authority may, if sufficient cause is shown at any stage of proceeding referred to in sub-section (1), grant time, from time to time, to the parties or any of them and

adjourn the hearing for reasons to be recorded in writing:

Provided that no such adjournment shall be granted more than three times to a party during the proceeding.

SECTION 123. Burden of proof in certain cases. – (1) Where any goods to which this section applies are seized under this Act in the reasonable belief that they are smuggled goods, the burden of proving that they are not smuggled goods shall be –

(a) in a case where such seizure is made from the possession of any person, -
(i) on the person from whose possession the goods were seized; and
(ii) if any person, other than the person from whose possession the goods were seized, claims to be the owner thereof, also on such other person;
(b) in any other case, on the person, if any, who claims to be the owner of the goods so seized.

(2) This section shall apply to gold, and manufactures thereof, watches, and any other class of goods which the Central Government may by notification in the Official Gazette specify.

SECTION 124. Issue of show cause notice before confiscation of goods, etc. – No order confiscating any goods or imposing any penalty on any person shall be made under this Chapter unless the owner of the goods or such person -

(a) is given a notice in writing with the prior approval of the officer of Customs not below the rank of an Assistant Commissioner of Customs, informing him of the grounds on which it is proposed to confiscate the goods or to impose a penalty;

(b) is given an opportunity of making a representation in writing within such reasonable time as may be specified in the notice against the grounds of confiscation or imposition of penalty mentioned therein; and

(c) is given a reasonable opportunity of being heard in the matter :

Provided that the notice referred to in clause (a) and the representation referred to in clause (b) may, at the request of the person concerned be oral.

SECTION 125. Option to pay fine in lieu of confiscation. – (1) Whenever confiscation of any goods is authorised by this Act, the officer adjudging it may, in the case of any goods, the importation or exportation whereof is prohibited under this Act or under any other law for the time being in force, and shall, in the case of any other goods, give to the owner of the goods or, where such owner is not known, the person from whose possession or custody such goods have been seized, an option to pay in lieu of confiscation such fine as the said officer thinks fit :

Provided that, without prejudice to the provisions of the proviso to sub-section (2) of section 115, such fine shall not exceed the market price of the goods confiscated, less in the case of imported goods the duty chargeable thereon.

(2) Where any fine in lieu of confiscation of goods is imposed under sub-section (1), the owner of such goods or the person referred to in sub-section (1), shall, in addition, be liable to any duty and charges payable in respect of such goods.

SECTION 126. On confiscation, property to vest in Central Government. – (1) When any goods are confiscated under this Act, such goods shall thereupon vest in the Central Government.

(2) The officer adjudging confiscation shall take and hold possession of the confiscated goods.

SECTION 127. Award of confiscation or penalty by customs officers not to interfere with other punishments. – The award of any confiscation or penalty under this Act by an officer of customs shall not prevent the infliction of any punishment to which the person affected thereby is liable under the provisions of Chapter XVI of this Act or under

any other law.

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THE CUSTOMS ACT, 1962 (52 of 1962)

CHAPTER XVI

Offences and prosecutions

SECTION 132. False declaration, false documents, etc. – Whoever makes, signs or uses, or causes to be made, signed or used, any declaration, statement or document in the transaction of any business relating to the customs, knowing or having reason to believe that such declaration, statement or document is false in any material particular, shall be punishable with imprisonment for a term which may extend to two years, or with fine, or with both.

SECTION 133. Obstruction of officer of customs. – If any person intentionally obstructs any officer of customs in the exercise of any powers conferred under this Act, such person shall be punishable with imprisonment for a term which may extend to two years, or with fine, or with both.

SECTION 134. Refusal to be X-rayed. – If any person –

(a) resists or refuses to allow a radiologist to screen or to take X-ray picture of his body in accordance with an order made by a Magistrate under section 103, or

(b) resists or refuses to allow suitable action being taken on the advice and under the supervision of a registered medical practitioner for bringing out goods liable to confiscation secreted inside his body, as provided in section 103, he shall be punishable with imprisonment for a term which may extend to six months, or with fine, or with both.

SECTION 135. Evasion of duty or prohibitions. – "(1) Without prejudice to any action that may be taken under this Act, if any person —

(a) is in relation to any goods in any way knowingly concerned in misdeclaration of value or in any fraudulent evasion or attempt at evasion of any duty chargeable thereon or of any prohibition for the time being imposed under this Act or any other law for the time being in force with respect to such goods; or

(b) acquires possession of or is in any way concerned in carrying, removing, depositing, harbouring, keeping, concealing, selling or purchasing or in any other manner dealing with any goods which he knows or has reason to believe are liable to confiscation under Section 111 or Section 113, as the case may be; or

(c) attempts to export any goods which he knows or has reason to believe are liable to confiscation under Section 113; or

(d) fraudulently avails of or attempts to avail of drawback or any exemption from duty provided under this Act in connection with export of goods, he shall be punishable, —

(i) in the case of an offence relating to, —

(A) any goods the market price of which exceeds one crore of rupees; or

(B) the evasion or attempted evasion of duty exceeding thirty lakh of rupees; or

(C) such categories of prohibited goods as the Central Government may, by notification in the Official Gazette, specify; or

(D) fraudulently availing of or attempting to avail of drawback or any exemption from duty referred to in clause (d), if the amount of drawback or exemption from duty exceeds thirty lakh of rupees, with imprisonment for a term which may extend to seven years and with fine:

Provided that in the absence of special and adequate reasons to the contrary to be recorded in the judgment of the court, such imprisonment shall not be for less than one year;

(ii) in any other case, with imprisonment for a term which may extend to three years,

or with fine, or with both.

(2) If any person convicted of an offence under this section or under sub-section (1) of section 136 is again convicted of an offence under this section, then, he shall be punishable for the second and for every subsequent offence with imprisonment for a term which may extend to seven years and with fine:

Provided that in the absence of special and adequate reasons to the contrary to be recorded in the judgment of the court such imprisonment shall not be for less than one year.

(3) For the purposes of sub-sections (1) and (2), the following shall not be considered as special and adequate reasons for awarding a sentence of imprisonment for a term of less than one year, namely :-

(i) the fact that the accused has been convicted for the first time for an offence under this Act;

(ii) the fact that in any proceeding under this Act, other than a prosecution, the accused has been ordered to pay a penalty or the goods which are the subject matter of such proceedings have been ordered to be confiscated or any other action has been taken against him for the same act which constitutes the offence;

(iii) the fact that the accused was not the principal offender and was acting merely as a carrier of goods or otherwise was a secondary party to the commission of the offence;

(iv) the age of the accused.

SECTION 135A. Preparation. – If a person makes preparation to export any goods in contravention of the provisions of this Act, and from the circumstances of the case it may be reasonably inferred that if not prevented by circumstances independent of his will, he is determined to carry out his intention to commit the offence, he shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.

SECTION 135B. Power of court to publish name, place of business, etc., of persons convicted under the Act. – (1) Where any person is convicted under this Act for contravention of any of the provisions thereof, it shall be competent for the court convicting the person to cause the name and place of business or residence of such person, nature of the contravention, the fact that the person has been so convicted and such other particulars as the court may consider to be appropriate in the circumstances of the case, to be published at the expense of such person in such newspapers or in such manner as the court may direct.

(2) No publication under sub-section (1) shall be made until the period for preferring an appeal against the orders of the court has expired without any appeal having been preferred, or such an appeal, having been preferred, has been disposed of.

(3) The expenses of any publication under sub-section (1) shall be recoverable from the convicted person as if it were a fine imposed by the court.

SECTION 136. Offences by officers of customs. – (1) If any officer of customs enters into or acquiesces in any agreement to do, abstains from doing, permits, conceals or connive at any act or thing, whereby any fraudulent export is effected or any duty of customsleviable on any goods, or any prohibition for the time being in force under this Act or any other law for the time being in force with respect to any goods is or may be evaded, he shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.

(2) If any officer of customs, -

(a) requires any person to be searched for goods liable to confiscation or any document relating thereto, without having reason to believe that he has such goods or document secreted about his person; or

(b) arrests any person without having reason to believe that he has been guilty of an offence punishable under section 135; or

(c) searches or authorises any other officer of customs to search any place without

having reason to believe that any goods, documents or things of the nature referred to in section 105 are secreted in that place, he shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

(3) If any officer of customs, except in the discharge in good faith of his duty as such officer or in compliance with any requisition made under any law for the time being in force, discloses any particulars learnt by him in his official capacity in respect of any goods, he shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

SECTION 137. Cognizance of offences. – (1) No court shall take cognizance of any offence under section 132, section 133, section 134 or section 135 or section 135A, except with the previous sanction of the Commissioner of Customs.

(2) No court shall take cognizance of any offence under section 136, -

(a) where the offence is alleged to have been committed by an officer of customs not lower in rank than Assistant Commissioner of Customs, except with the previous sanction of the Central Government;

(b) where the offence is alleged to have been committed by an officer of customs lower in rank than Assistant Commissioner of Customs except with the previous sanction of the Commissioner of Customs.

(3) Any offence under this Chapter may, either before or after the institution of prosecution, be compounded by the Chief Commissioner of Customs on payment, by the person accused of the offence to the Central Government, of such compounding amount and in such manner of compounding as may be specified by rules.

Provided that nothing contained in this sub-section shall apply to-

(a) a person who has been allowed to compound once in respect of any offence under sections 135 and 135A;

(b) a person who has been accused of committing an offence under this Act which is also an offence under any of the following Acts, namely:—

(i) the Narcotic Drugs and Psychotropic Substances Act, 1985(61 of 1985);

(ii) the Chemical Weapons Convention Act, 2000 (34 of 2000);

(iii) the Arms Act, 1959 (54 of 1959);

(iv) the Wild Life (Protection) Act, 1972 (53 of 1972);

(c) a person involved in smuggling of goods falling under any of the following, namely:—

(i) goods specified in the list of Special Chemicals, Organisms, Materials, Equipment and Technology in Appendix 3 to Schedule 2 (Export Policy) of ITC (HS) Classification of Export and Import Items of the Foreign Trade Policy, as amended from time to time, issued under section 5 of the Foreign Trade (Development and Regulation) Act, 1992 (22 of 1992);

(ii) goods which are specified as prohibited items for import and export in the ITC (HS) Classification of Export and Import Items of the Foreign Trade Policy, as amended from time to time, issued under section 5 of the Foreign Trade (Development and Regulation) Act, 1992 (22 of 1992);

(iii) any other goods or documents, which are likely to affect friendly relations with a foreign Stateorare derogatory to national honour;

(d) a person who has been allowed to compound once in respect of any offence under this Chapter for goods of value exceeding rupees one crore;

(e) a person who has been convicted under this Act on or after the 30th day of December, 2005.

SECTION 138. Offences to be tried summarily. – Notwithstanding anything contained in the Code of Criminal Procedure, 1898 (5 of 1898), an offence under this Chapter other than an offence punishable under clause (i) of sub-section (1) of section 135 or under sub-section (2) of that section may be tried summarily by a Magistrate.

SECTION 138A. Presumption of culpable mental state. – (1) In any prosecution for an offence under this Act which requires a culpable mental state on the part of the accused, the court shall presume the existence of such mental state but it shall be a defence for the accused to prove the fact that he had no such mental state with respect to the act charged as an offence in that prosecution.

Explanation. - In this section, "culpable mental state" includes intention, motive, knowledge of a fact and belief in, or reason to believe, a fact.

(2) For the purposes of this section, a fact is said to be proved only when the court believes it to exist beyond reasonable doubt and not merely when its existence is established by a preponderance of probability.

SECTION 138B. Relevancy of statements under certain circumstances. – (1) A statement made and signed by a person before anygazetted officer of customs during the course of any inquiry or proceeding under this Act shall be relevant, for the purpose of proving, in any prosecution for an offence under this Act, the truth of the facts which it contains, -

(a) when the person who made the statement is dead or cannot be found, or is incapable of giving evidence, or is kept out of the way by the adverse party, or whose presence cannot be obtained without an amount of delay or expense which, under the circumstances of the case, the court considers unreasonable; or

(b) when the person who made the statement is examined as a witness in the case before the court and the court is of opinion that, having regard to the circumstances of the case, the statement should be admitted in evidence in the interests of justice.

(2) The provisions of sub-section (1) shall, so far as may be, apply in relation to any proceeding under this Act, other than a proceeding before a court, as they apply in relation to a proceeding before a court.

SECTION 138C. Admissibility of micro films, facsimile copies of documents and computer print outs as documents and as evidence. – (1) Notwithstanding anything contained in any other law for the time being in force, -

(a) a micro film of a document or the reproduction of the image or images embodied in such micro film (whether enlarged or not); or

(b) a facsimile copy of a document; or

(c) a statement contained in a document and included in a printed material produced by a computer (hereinafter referred to as a "computer printout"), if the conditions mentioned in sub-section (2) and the other provisions contained in this section are satisfied in relation to the statement and the computer in question, shall be deemed to be also a document for the purposes of this Act and the rules made thereunder and shall be admissible in any proceedings thereunder, without further proof or production of the original, as evidence of any contents of the original or of any fact stated therein of which direct evidence would be admissible.

(2) The conditions referred to in sub-section (1) in respect of a computer printout shall be the following, namely :-

(a) the computer printout containing the statement was produced by the computer during the period over which the computer was used regularly to store or process information for the purposes of any activities regularly carried on over that period by the person having lawful control over the use of the computer;

(b) during the said period, there was regularly supplied to the computer in the ordinary course of the said activities, information of the kind contained in the statement or of the kind from which the information so contained is derived;

(c) throughout the material part of the said period, the computer was operating properly or, if not, then any respect in which it was not operating properly or was out of operation during that part of that period was not such as to affect the production of the document or the accuracy of the contents; and

(d) the information contained in the statement reproduces or is derived from information supplied to the computer in the ordinary course of the said activities.

(3) Where over any period, the function of storing or processing information for the purposes of any activities regularly carried on over that period as mentioned in clause (a) of sub-section (2) was regularly performed by computers, whether -

(a) by a combination of computers operating over that period; or

(b) by different computers operating in succession over that period; or

(c) by different combinations of computers operating in succession over that period; or

(d) in any other manner involving the successive operation over that period, in whatever order, of one or more computers and one or more combinations of computers, all the computers used for that purpose during that period shall be treated for the purposes of this section as constituting a single computer; and references in this section to a computer shall be construed accordingly.

(4) In any proceedings under this Act and the rules made thereunder where it is desired to give a statement in evidence by virtue of this section, a certificate doing any of the following things, that is to say, -

(a) identifying the document containing the statement and describing the manner in which it was produced;

(b) giving such particulars of any device involved in the production of that document as may be appropriate for the purpose of showing that the document was produced by a computer;

(c) dealing with any of the matters to which the conditions mentioned in sub-section (2) relate,

and purporting to be signed by a person occupying a responsible official position in relation to the operation of the relevant device or the management of the relevant activities (whichever is appropriate) shall be evidence of any matter stated in the certificate; and for the purposes of this sub-section it shall be sufficient for a matter to be stated to the best of the knowledge and belief of the person stating it.

(5) For the purposes of this section, -

(a) information shall be taken to be supplied to a computer if it is supplied thereto in any appropriate form and whether it is so supplied directly or (with or without human intervention) by means of any appropriate equipment;

(b) whether in the course of activities carried on by any official, information is supplied with a view to its being stored or processed for the purposes of those activities by a computer operated otherwise than in the course of those activities, that information, if duly supplied to that computer, shall be taken to be supplied to it in the course of those activities;

(c) a document shall be taken to have been produced by a computer whether it was produced by it directly or (with or without human intervention) by means of any appropriate equipment.

Explanation. - For the purposes of this section, -

(a) "computer" means any device that receives, stores and processes data, applying stipulated processes to the information and supplying results of these processes; and

(b) any reference to information being derived from other information shall be a reference to its being derived there from by calculation, comparison or any other process.

SECTION 139. Presumption as to documents in certain cases. – Where any document –

(i) is produced by any person or has been seized from the custody or control of any person, in either case, under this Act or under any other law, or

(ii) has been received from any place outside India in the course of investigation of any offence alleged to have been committed by any person under this Act, and such

document is tendered by the prosecution in evidence against him or against him and any other person who is tried jointly with him, the court shall -

(a) presume, unless the contrary is proved, that the signature and every other part of such document which purports to be in the handwriting of any particular person or which the court may reasonably assume to have been signed by, or to be in the handwriting of, any particular person, is in that person's handwriting, and in the case of a document executed or attested, that it was executed or attested by the person by whom it purports to have been so executed or attested;

(b) admit the document in evidence, notwithstanding that it is not duly stamped, if such document is otherwise admissible in evidence;

(c) in a case falling under clause (i) also presume, unless the contrary is proved, the truth of the contents of such document.

Explanation. - For the purposes of this section, "document" includes inventories, photographs and lists certified by a Magistrate under sub-section (1C) of section 110.

SECTION 140. Offences by companies. – (1) If the person committing an offence under this Chapter is a company, every person who, at the time the offence was committed was in charge of, and was responsible to, the company for the conduct of business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to such punishment provided in this Chapter if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Chapter has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any negligence on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation. - For the purposes of this section, -

(a) "company" means a body corporate and includes a firm or other association of individuals; and

(b) "director", in relation to a firm, means a partner in the firm.

SECTION 140A. Application of section 562 of the Code of Criminal Procedure, 1898, and of the Probation of Offenders Act, 1958. –

(1) Nothing contained in section 562 of the Code of Criminal Procedure, 1898 (5 of 1898), or in the Probation of Offenders Act, 1958 (20 of 1958), shall apply to a person convicted of an offence under this Act unless that person is under eighteen years of age.

(2) The provisions of sub-section (1) shall have effect notwithstanding anything contained in sub-section (3) of section 135.

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