



REFERENCE SHEET

REFERENCE MATERIAL

IAEA-A-12

RADIONUCLIDES IN ANIMAL BONE

Date of issue: January 2000[⊕]

Recommended Values
(Based on dry weight)

Reference Date for decay correction: 15th December 1981

Radionuclide	Recommended Value Bq/kg	95% Confidence Interval Bq/kg	N*
⁹⁰ Sr	54.8	46.3 – 59.2	28
²²⁶ Ra	5.2	4.4 – 6.7	14

* Number of accepted laboratory results which were used to calculate the recommended values and confidence intervals about the median value.

⊕ Revision of the original reference sheet dated January 1983

The values listed above were established on the basis of statistically valid results submitted by laboratories which had participated in an international intercomparison exercise organized during 1981. The details concerning the criteria for qualification as a recommended value can be found in the report (IAEA/RL/96) "Report on the Intercomparison Run A-12: Radionuclides in Animal Bone" [1]. This report is available free of charge upon request.

Intended Use

This sample is intended to be used as a reference material for the measurement of radionuclides in animal bone. It can also be used as a quality control material for the assessment of a laboratory's analytical work, for the validation of analytical methods and for quality assurance within a laboratory.

Origin and preparation of the material

The animal bone material was obtained from a commercial supplier. The material had been defatted, dried, sterilized and crushed to give a particle size below 125 µm.

A bulk sample of approximately 50 kg of animal bone powder was received by the Agency's Laboratories at Seibersdorf and was further homogenized by mixing in a rotating plastic drum for 70 hours. The material was dispensed into plastic bottles in 80 g units without any further processing. Subsequently, the samples were irradiated to a dose of 2.5×10^4 Gy using a ^{60}Co source to ensure long-term stability of the material by inhibiting microbial action.

Homogeneity

The between and within bottle homogeneity of the material was assessed by determining the elemental strontium concentration in 200 mg sub-samples using flame atomic absorption spectrometry. The results were subjected to F and T tests and it was concluded that the material could be considered to be homogeneous for a sample size greater than or equal to 200 mg.

Dry weight determination

All recommended values are expressed on a dry weight basis. Therefore the dry weight must be determined at the time of analysis, using separate sub-samples of at least 500 mg dried to constant weight in a drying oven set to 105 °C. Subsequent weighings should differ by less than 5 mg.

Instructions for use

The recommended sample size for analysis is 200 mg. Analysts are reminded to take appropriate precautions in order to avoid contamination of the material during handling. No special precautions are required for the storage of this material.

Legal disclaimer

The IAEA makes no warranties, expressed or implied, with respect to the data contained in this reference sheet and shall not be liable for any damage that may result from the use of such data.

References

- [1] Pszonicki L., Hanna A. N. and Suchny O., Report on the Intercomparison Run A-12: Radionuclides in Animal Bone. IAEA/RL/96, IAEA, Vienna, Austria 1983.

Issued & supplied by

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