BWR-PB (Russia)

Unit cell description

Specification of Micro Fuel Elements (MFEs) and other materials used in the design of BWR-PB is shown in Table 1. In the fuel region, MFEs are dispersed in light water so that the volume fraction of fuel particles to the fuel region is 61.0%. Calculation conditions are summarized in table2.

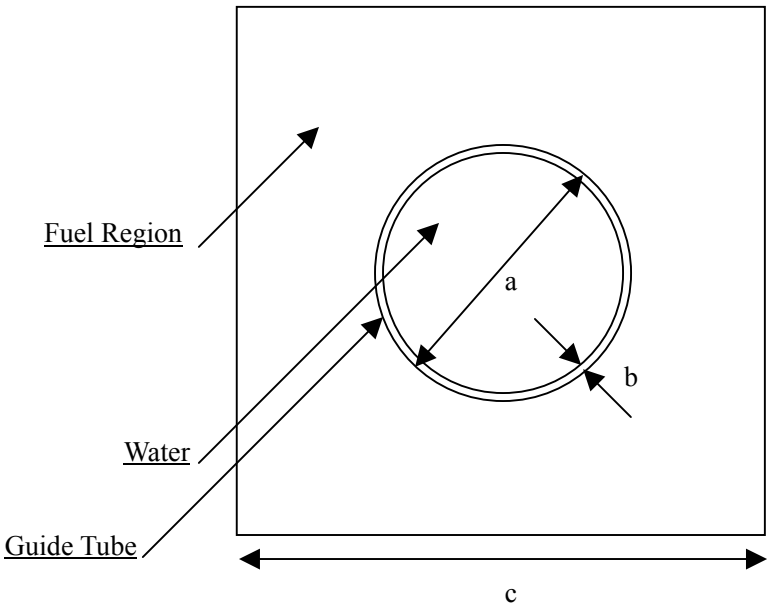

Fig 1. Unit cell (a=30.31 mm, b=0.5 mm, c=62.5 mm)

Table.1 Specification of MFEs and other materials

	Material	Density [g/cm^3]	Dimension [mm]	
Fuel kernel	UO_2	10.4	1.3	(diameter)
1st coating layer	PYC (porous)	1.0	0.12	(thickness)
2nd coating layer	PYS (dense)	1.8	0.005	(thickness)
3rd coating layer	SiC	3.2	0.125	(thickness)
MFE TOTAL	-	-	1.8	(diameter)
Guide tube	ZrNb	-	0.5 30.31	(thickness) (diameter)
Coolant	H_2O	0.743	-	

Table.2. Calculation conditions

Geometry	Square
Boundary Condition	Perfect Reflection
Enrichment of ^{235}U	10.0wt%
Water : MFEs	39 : 61
Cell length	62.5
System average temperature	280 ^{o}C
Linear heating rate	96.3kW/m