

LSNReviews

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Sent: Monday, January 14, 2008 6:47 PM
To: Alexei Kouznetsov
Subject: gaz v matrice
Attachments: Outlook.jpg

Posmotri na komentarij Tae. Ty znaesh' chto-nibud' pro to, kak tverdye atomy prevraschayutsya v gazovye i pochemu oni istorgayutsya iz potreskavshejsya matricy? Uranium hydride, chto v TRIGA reactorax, sodержit rastvorennyj H v Zr , plus vkraplennyj U:

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Table 3-5. Description of Modeled TRIGA Fuel Element and Reactor Campaign		
Parameter	Value	Source
Beginning of life U-235	39.0 g [0.0859 lb]	*; †
Beginning of life U-238	156.0 g [10,344 lb]	*; †
Beginning of life Uranium	195.0 g [10,430 lb]	*; †
Enrichment (%)	20	*; †
Cladding material	Type 304L SS	*; †
U wt% in ZrH	8.5	*; †
H:Zr atom ratio	1.7	*; †
Stainless steel mass	800 g [1.76 lb]	*; †
Co-59 impurity level in stainless steel	2,200 ppm	‡; *
Fittings mass	530 g [1.17 lb]	§
Scaling factor for fittings	0.2	‡
TRIGA rod diameter	34,798 mm [1.37 in]	§
Diameter of Zr rod	5,715 mm [0.225 in]	†;
Active fuel length	391 mm [15.39 in]	†;
Number of fuel elements in core	91	†; *;
Number of modeled control rods in core	2	*;
Core layout in MARK-II reactor	Six concentric cylindrical rings	*;
Average distance between adjacent rings in MARK-II core	42 mm [1.65 in]	*;
Modeled lattice type	Triangular Infinite	*;
Modeled lattice pitch	42 mm [1.65 in]	*;
Total burnup MWd/MTU	34,103	¶; #; *
Duration of irradiation (years)	4	¶; #; *

It is unclear how a Ra atom in the solid matrix can get out. After the atom gets out of the matrix, it can be gaseous. Otherwise, it will be a solid atom. Only Ra (or U-234) on the fuel surface (in very small amount) can escape.