

## The Characteristics of Fission Products in Dry Stored Spent Fuel

150

가 가 .  
2 2 1 7  
EPMA ,  
Ru Nd가 가

### Abstract

For a safe storage of spent nuclear fuel, the physical and chemical properties obtained from irradiated nuclear fuel are needed. An analysis on irradiated fuel from Kori-2 was performed by Shielded EPMA installed in IMEF/KAERI. The fuel has many fission gas bubbles and interlinkages on grain surfaces and boundaries, but doesn't show any metallic precipitates. The results also show that Ru and Nd are richer than other fission elements.

1.

가 , 가  
 , 가  
 , 가 [1-3].

가  
 / 가 , 가  
 1 7 , 2 2  
 EPMA

2.

2 2 가 1 , 7  
 35,199 MWD/MTU , 가 2,400 mm  
 39,700 MWD/MTU  
 silver paint  
 EPMA

3.

3.1

1 5 . 1  
 10 15  $\mu$ m .  
 2  
 3  
 4

Schaner[4] Yagnik [5]  
 $U_4O_9$  acicular precipitate

5

가

### 3.2

가

[6].

- + : Sr, Zr, Nb, Y, La, Ce, Pr, Nd, Pm, Sm
- + : Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sb, Te
- + : Ba, Zr, Nb, Mo, (Rb, Cs, Te)
- + : Kr, Xe, Br, I, (Rb, Cs, Te)

[7]

Mo-Ru-Rh-Pd

가

가

1

20

Ru, Pd, Mo, Rh가 0.450, 0.000,  
 Nd, Y, Sr,

0.222 0.010 at%

La Ce 0.416, 0.064, 0.024, 0.095

0.245 at% Zr

0.235 at%가

(BaZrO<sub>3</sub>) 가

Ba Barium-Zirconate type perovskite

[7].

BaZrO<sub>3</sub>

0.200 at%

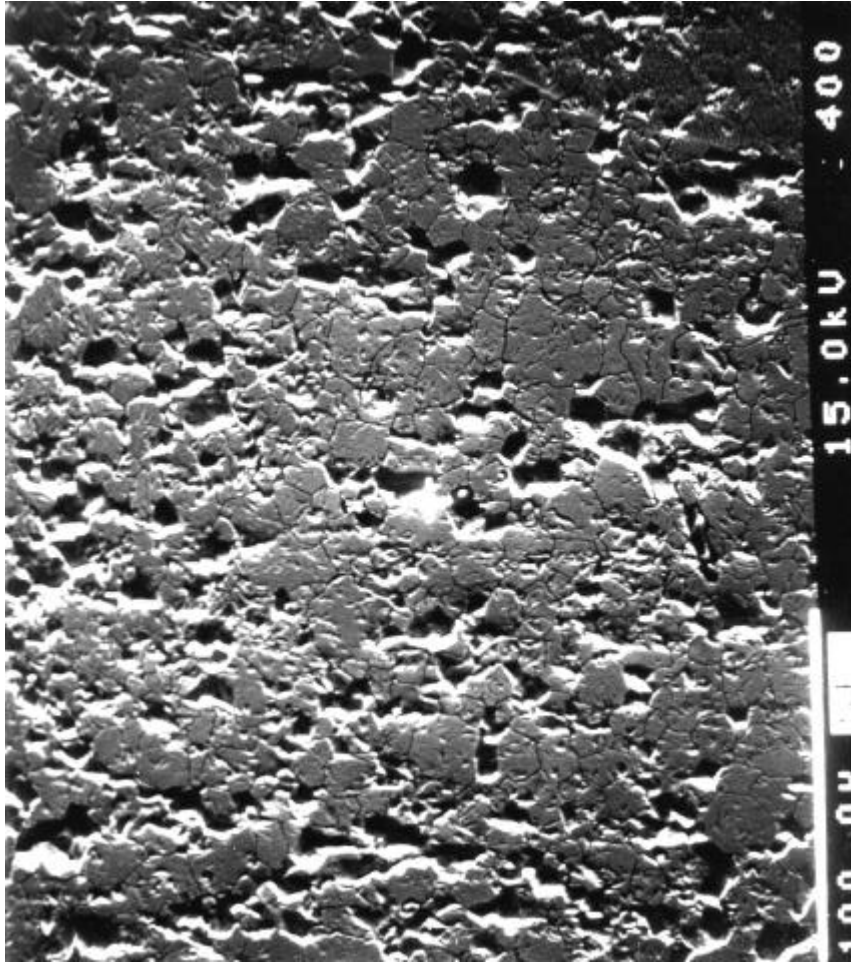
4.

Mo-Ru-Rh-Pd  
Ru Nd가 가

- [1] J.Cobos, et al., J. Alloys and Compounds 271-273 (1998) 610-615.
- [2] T. Muromura, et al., J. Nucl, Mater. 151 (1988) 318-326.
- [3] T. Adachi, et al., J. Nucl, Mater. 160 (1988) 81-87.
- [4] B. Schaner, J. Nucl. Mater. 2(1960) 110.
- [5] Suresh K. Yagnik, et al. J. Nucl, Mater. 270 (1999) 65.
- [6] P.G.Lucuta, et al., Proc. 2nd Int. Conf. on CANDU Fuel, CNS, Toronto, 1989.
- [7] P.G.Lucuta, et al., J. Nucl, Mater. 178 (1991) 48.

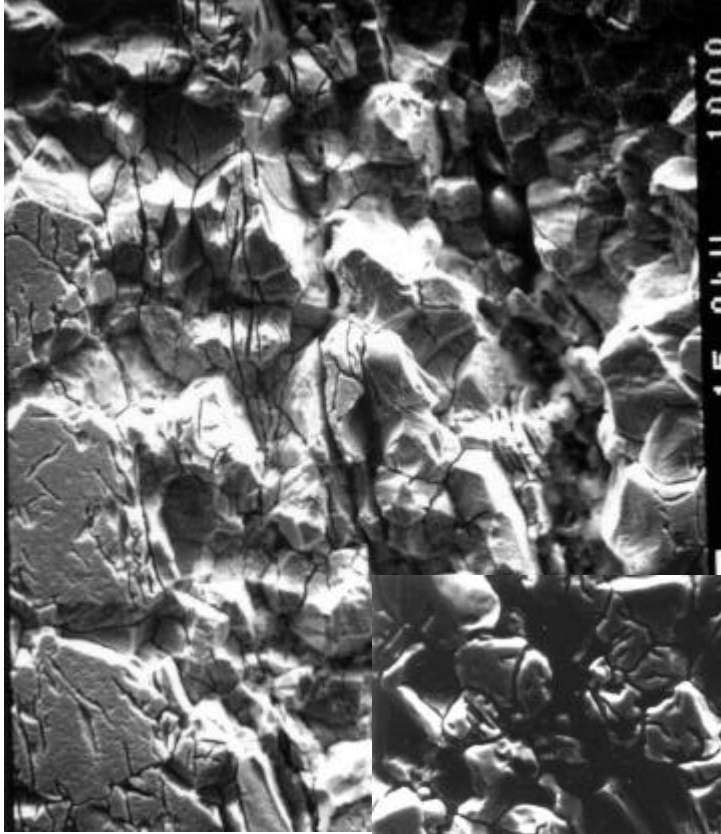
## 1. Stoi

	Atomic %	
Ru	0.450	0.064
Pd	0.000	0.000
Mo	0.222	0.094
Rh	0.010	0.031
Zr	0.235	0.108
Ba	0.200	0.165
Y	0.064	0.064
Sr	0.024	0.041
Nd	0.416	0.101
La	0.095	0.099
Ce	0.245	0.148

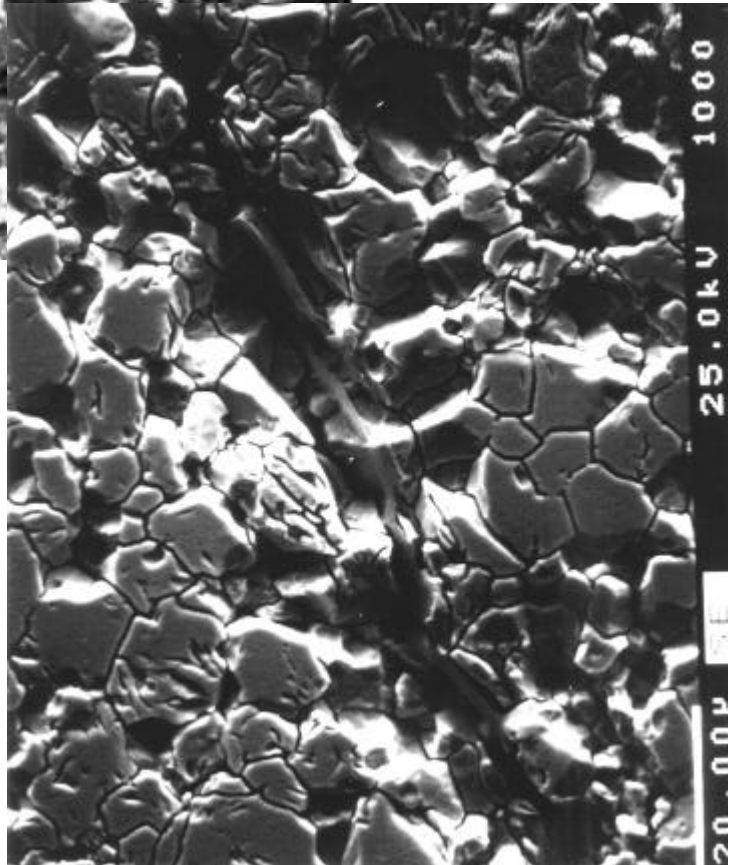


X400

1.

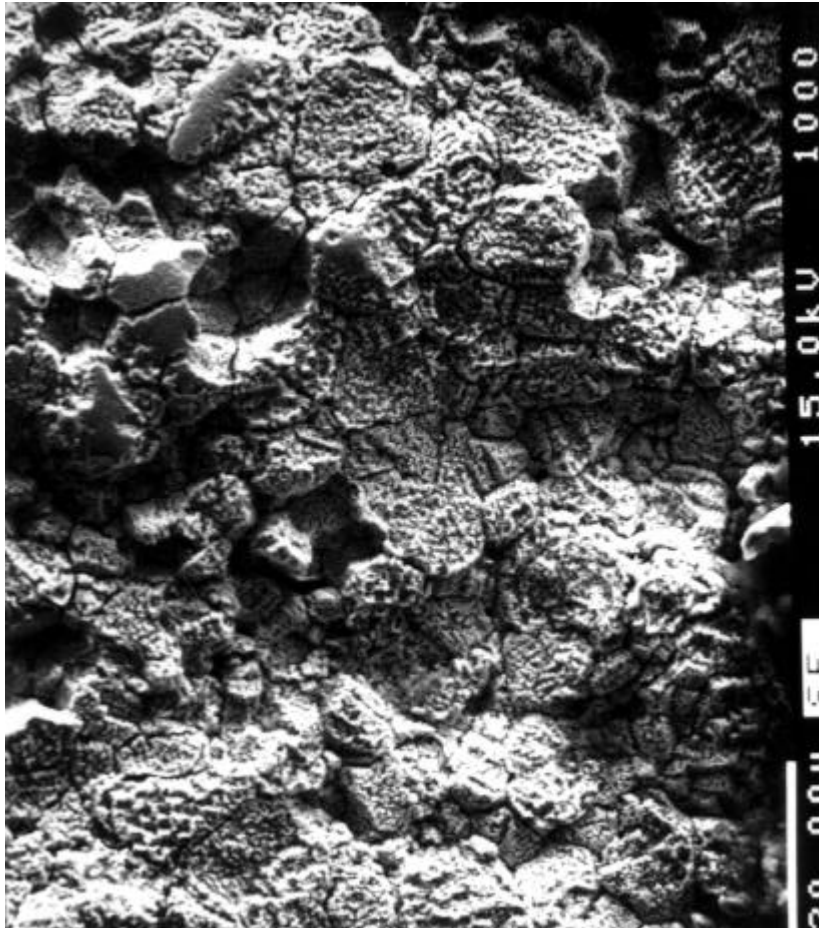


A  
X1000



B  
X1000

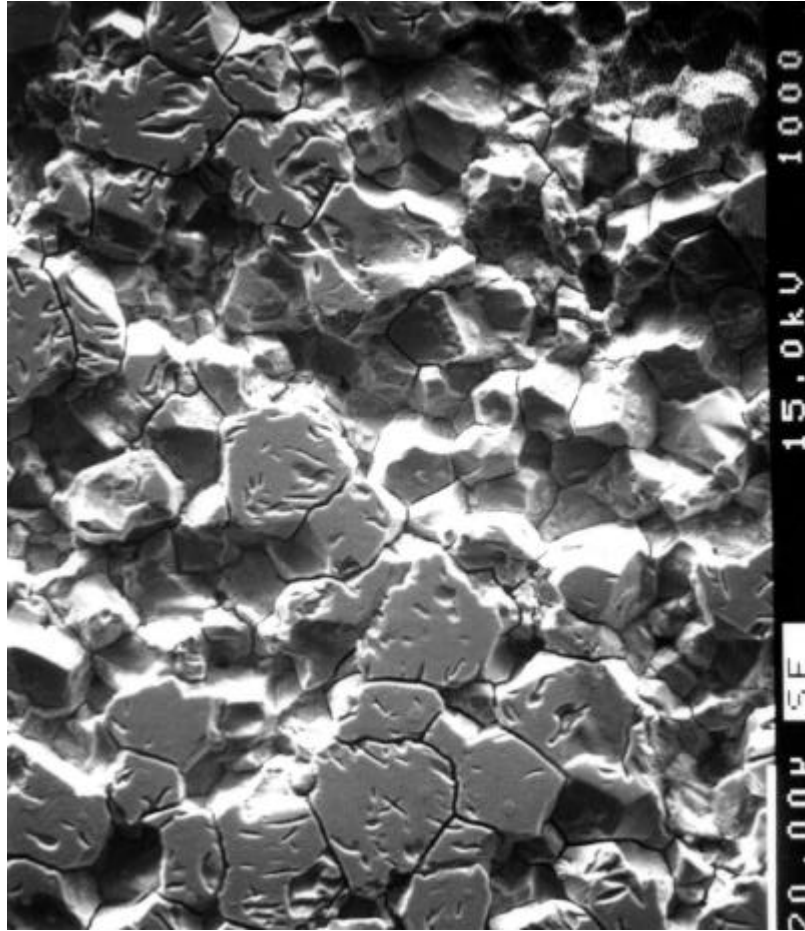
2.



X1000

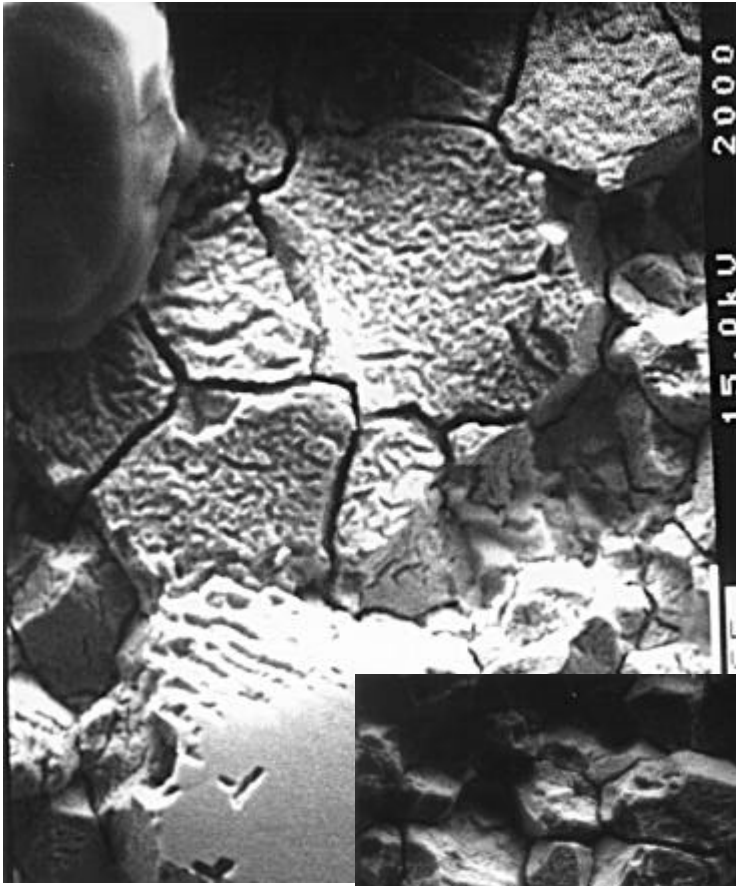
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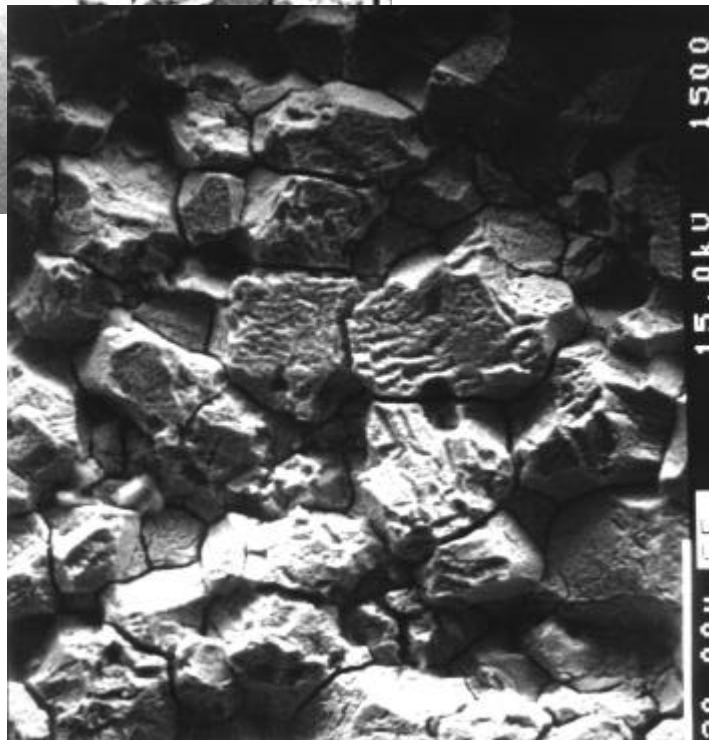


X1000

4.



A  
X2000



B  
X1000

5.