

The Effects of Moisture Content on Homogeneity of Dispersion Fuels

가 . 가 가
 가 . 0.10 wt% 가
 cohesive .

Abstract

It is investigated to measure the homogeneity with varying the moisture content in the fuel powder and aluminum powder mixture in order to improve the homogeneity of dispersion fuel. The homogeneity of powder mixture containing moisture is superior to that of dried powder mixture. It is shown that the order of the effect on homogeneity is fuel powder, aluminum powder and atmosphere. However, in the case the moisture content is over 0.10 wt%, homogeneity decreases. This phenomenon can be explained by cohesive mixing mechanism that two different particles, which happen to contact with cohesiveness, have a tendency to move without separation in mixing.

1.

DOE 1978 U-A1 RERTR program
 RHF Orphee, BR-2 ,
 U-loading 8 9g-U/cm³ 가

[1]. LEU

가
가
U₃Si
uranium silicide
pressing
가

[2-4].

U₃Si U-Mo

2.

20 μ m 100 μ m V-shape tumbler mixer
(U₃Si, U-Mo)
0.75wt%
flow meter Hall

3.

Fig. 1 0.10wt% 가
Fig. 1 Fig. 1 가
가 가
가

cohesive

가

Fig. 2

Fig. 2

Fig. 3

가 가 , 0.10wt%
SEM
Al

0.10wt%

가

가

Fig. 4

Fig. 4

Al

가 가

Fig. 5

0.10wt%

X-ray
0.1wt%

가

가 Al

가 ,

V-shape tumbler mixer

가

가

4.

1) 0.10wt% 가

가

2) 0.10wt% 가

가

3)

5.

6.

- 1). G. L. Copeland, G. L. Hofman, J. L. Snelgrove, in Proceedings of International Meeting on Reduced Enrichment for Research and Test Reactors, Gatlinberg, Tennessee, U.S.A., Nov.

3-6, 1986. ANL/RERTR/TM-9.

2) M.Aloso, M.Satoh and K.Miyanami, Powder Technology, Vol. 59, pp.45-52, 1989.

3) C. K. Kim, K. H. Kim, J. M. Park, W. H. Sohn, S. H. Hong, Proc. of 21st International Meeting on RERTR, Oct. 18-23, Sao Paulo, Brazil, 1998.

4) , , , , , , 99' , pp. 299-302, 1999.

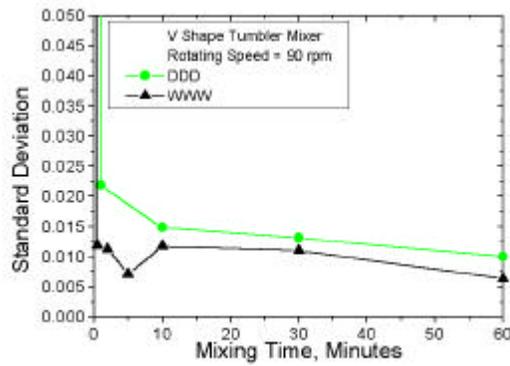


Fig. 1.

가

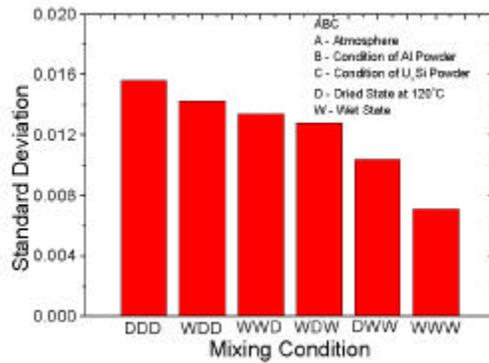


Fig. 2.

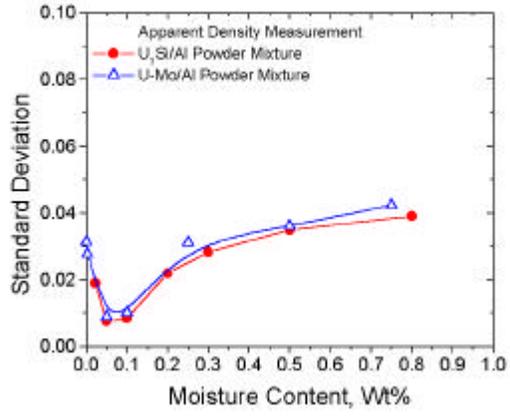


Fig. 3.

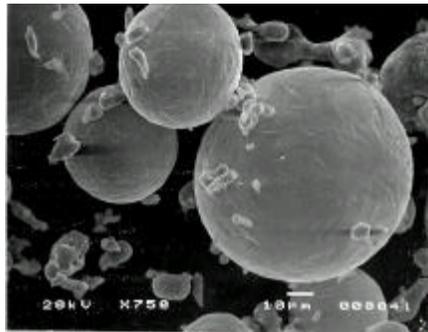


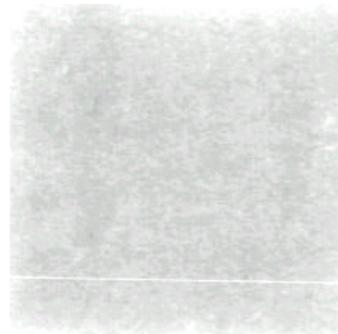
Fig. 4. 0.10 wt%

가

SEM



(a)



(b)

Fig. 5. (a)

(b) 0.10wt%

X-ray