

### Image Processing System of Dimensional Measurement of Oxidized Fuel Rods

, , 가, ,

150

MVB-03

, Microsoft visual C++ 5.0, Mitsubishi HA-FF33 AC MR-J2-40A Palladian software 1.0 X, Y, Z 3 .

가

3 9%

2 7%

#### Abstract

In order to perform surface defect inspection and dimensional measurement of oxidized fuel rods in nuclear reactor, image processing control system which can automatically control 3 D-location such as X, Y, Z by developing the Palladian software 1.0 using Microsoft visual C++ 5.0 language, MVB-03 vision board of Samsung electronics co., HA-FF33 AC servo motor and MR-J2-40A motor drive of Mitsubishi co. was set up. Image processing measurement on fabricated oxidized fuel rods and sound fuel rods was carried out and their results were compared and analyzed. Binary image processing on grey-oxidized fuel rods was better than that on black-oxidized fuel rods. (  $D/D_0(D_0:10.72mm)$  ) of grey-oxidized fuel rods is 3 9%, while that of sound fuel rods is 2 7%.

swelling densification

[1 3].

[4 7].

Mitsubishi	HA-FF33 AC	MR-J2-40A
MVB-03	Microsoft visual C++ 5.0	Palladian software 1.0
	X, Y, Z 3	

2.

2.1.

MVB-03	Microsoft visual C++ 5.0	98 OS
		Palladian software
1.0		,
	/	가

2.2.

Mitsubishi	400 (W)	HA-FF33 AC	MR-J2-40A
	X, Y, Z 3		
		1	
		1μm	3 0 250
mm/min			

2.3.

2

가 214mm, 214mm, 570mm  
 , 가 2  
 . 1 14 × 14 3

1 2 17 × 17 3 . 14 × 14 가 5 ( 5  
 9 ) 10.72mm 100mm 600 , 5min  
 20h 3 0 2μm(light  
 brown), 3 5μm(black), 6 10μm(black grey), 14 18μm(light grey), 24 26μm(grey)  
 5 14 × 14  
 . 17 × 17 가 5 ( 7 11 ) 9.5mm  
 100mm 5 17 × 17  
 . 가 10mm 10mm 214mm 5mm  
 5mm , 5mm PE 5mm 3 가  
 .  
 150mm  
 150mm .

3.

가 2mm ROI 가  
 (pixel) 가 2mm 가  
 2mm가  
 가  
 17cm 가 22 , 21 가  
 0.091mm , 0.095mm .  
 4 1  
 . 1 (10.72mm) 10μm  
 . 5  
 . 10.0 10.5mm  
 2 7%  
 11.0 11.7mm 3 9%  
 .  
 가

4.

1. Mitsubishi HA-FF33 AC , MR-J2-40A , MVB-03  
Microsoft visual C++ 5.0 Palladian software 1.0

2. 1  
(10.72mm) 10 $\mu$ m ,

3. 가  
3 9%  
2 7% .

가

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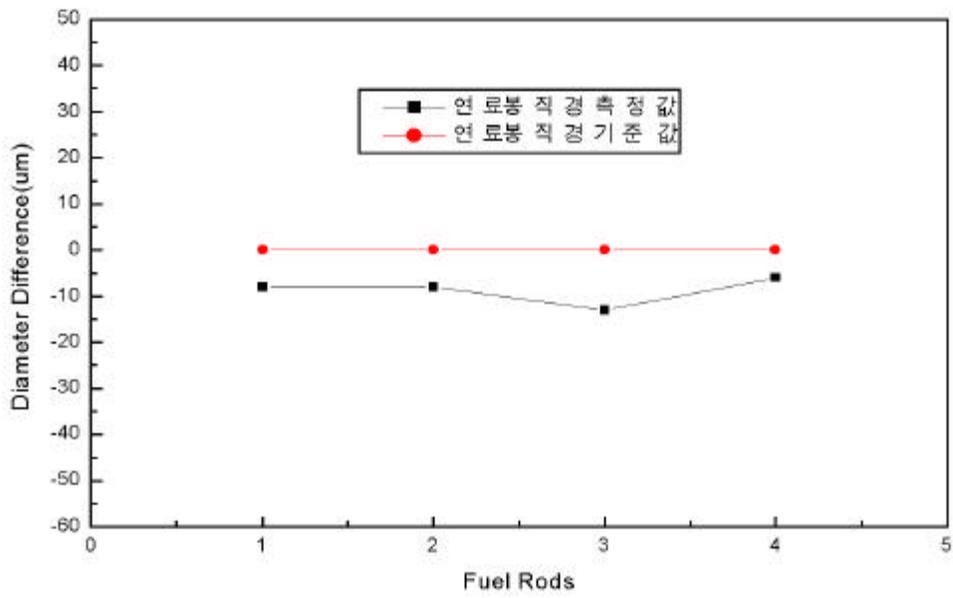
1.

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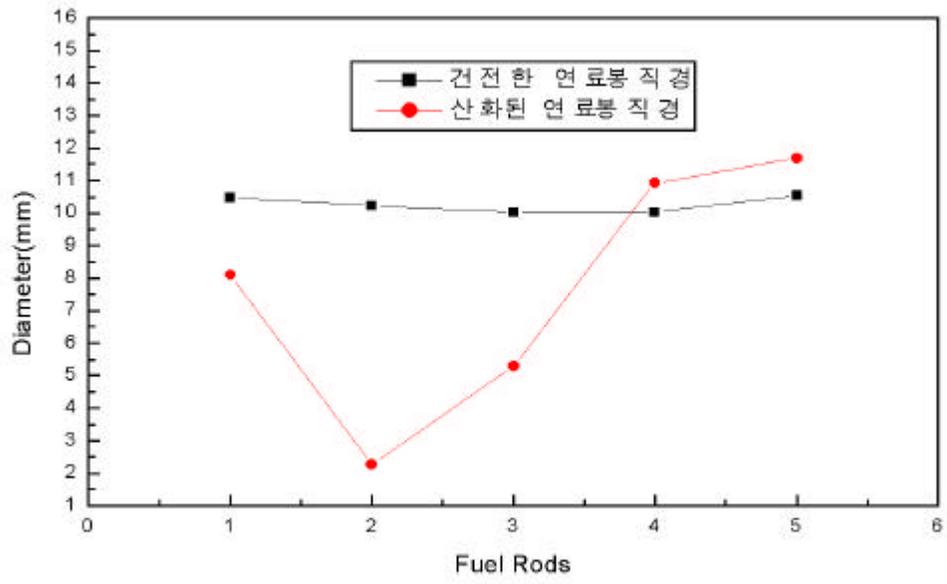
2.

.

3.



4. 1



5.