

(19) (KR)  
(12) (A)

(51) 。 Int. Cl.<sup>7</sup>  
C09K 11/56

(11)  
(43)

10-2005-0005452  
2005 01 13

(21) 10-2004-7016743

(22) 2004 10 18

2004 10 18

(86) PCT/CA2003/000568

(87)

WO 2003/090501

(86) 2003 04 16

(87)

2003 10 30

(30) 60/372,781 2002 04 17 (US)

(71) 8 3 4 10102-114

가 가

1-18-13

(72) 6 4 8 37

4 5 3 7 5

6 6 4 1167

573-0005 2-22-1

305-0821 가 2-33-14

(74)

:

(54)

1

IIA IIB

가

5,432,015

(TFFL)

TFEL

가

(color coordinates) (CRT)

가

1

10

1 /

5,656,888

가

CIE

가 , Sr<sub>0.5</sub> Ca<sub>0.5</sub> Ga<sub>2</sub> S<sub>4</sub>:Ce 4 % 가

2000-081483

1%

2  
20%

2

7

00 1000  
000 5000

가

1

2

1-55 (2001)]

[ : Japanese Journal of Applied Physics Vol. 40, pages 245  
920

가

x-

가

, XPS

2:3 . Al<sub>2</sub>O<sub>3</sub>  
 BaAl<sub>2</sub>S<sub>2.6</sub>O<sub>1.4</sub> , 2 BaAl<sub>2</sub>O<sub>2.1</sub>S<sub>1</sub>.  
 9 .  
 1,170,351 A2 . Ba:Al:O:S:Eu 1  
 750 BaAl  
 Al<sub>2</sub>O<sub>3</sub>  
 2.19 O 7.93 S 0.95 Eu 0.03 , 1 가 , 2  
 BaSO<sub>4</sub> 0.11 0.43 0.7 0.9가 +

1,170,350 A2 가 + EP 1,170,3  
 51 1 50 . 0.7 0.9 0.02 0.5 ,  
 가 / 가  
 / 가

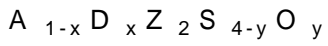
[ ]

가 가  
 B , 가 , IIA II  
 , , IIA IIB  
 , ,  
 IIA IIB  
 , ,  
 가 1 , IIA IIB  
 , ,  
 , IIB  
 가

가

가

가



A IIA IIB ;

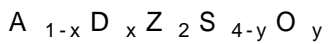
D ;

Z Al, Ga In ;

$0.005 < x < 0.1$ ;  $1.0 < y < 3.0$  ,

,  $1.6 < y < 2.4$  .

가



A IIA IIB ;

D ;

Z Al, Ga In ;

$0.005 < x < 0.1$ ;  $1.0 < y < 3.0$  .



/ , 가

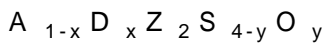
45 55 % IIA IIB 2 7 % ,

가

IIA IIB 1

가

∴



A IIA IIB ;

D ;

Z Al, Ga In ;

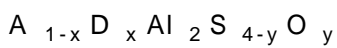
$0.005 < x < 0.1$ ;

$1.0 < y < 3.0$  .

1100 A, D, Z 0.01 15 , 800 .

0.1 5 , 0.2 1 .

가 , :



A IIA ;

D ;

$0.005 < x < 0.1$ ;

$0 < y < 1$  .

- ;

- 가

0.01 15 .

0.1 5 , 0.2 1 .

650 1100 , 650 850 , 750 850  
 . y  $0 < y < 0.1$  , A , D .

가

가 :

- 1 .
- 2 .
- 3 , 2000 ppm 1
- 5 가 .
- 4 3 .
- 5 , 3 .
- 6 , 2000 ppm 1
- 20 가 .
- 7 , 5 12 20
- 8 , 5 21 40
- 9 , 5 42 54
- 10 , 5 64 80
- 11 , 1 20 가
- 12 , 11
- 13 , 125 ppm
- 가 .
- 14 750 1100 13

가 ( ) 가

가

(BaAl<sub>2</sub>S<sub>4-x</sub>O<sub>x</sub>) 가

1 2 1 (10)

(14) 2 (12) (16) (18)

(18) 3 20, 22 24

3가 (26) (20)

(18) (30) (28) (26) (28) (26) (32)

(38) (34) (36) (22) (18) (24) (18)

(40) (42)

가

H<sub>2</sub>S,

가

0.1 5 가 800 1100 0.

2 1 가 850 950 가

가 BaAl<sub>2</sub>S<sub>4</sub> 가

BaAl<sub>2</sub>S<sub>4</sub> 가 460 480 2가

570 가 600 가 BaAl<sub>4</sub>S<sub>7</sub>

BaAl<sub>4</sub>S<sub>5</sub>O<sub>2</sub> 가 가 750 BaAl<sub>4</sub>S<sub>6</sub>O 790 8

40 860 가 BaAl<sub>2</sub>S<sub>2</sub>O<sub>2</sub> BaAl<sub>2</sub>S<sub>4</sub>

가 425 BaAl<sub>4</sub>S<sub>2</sub>O(OH)<sub>2</sub>



X- (BaAl<sub>2</sub>S<sub>4</sub>) 가 B  
aAl<sub>2</sub>S<sub>2</sub>O<sub>2</sub> 가 .1100

II  
I 4.3 mg 2000 ppm 5 /  
20 / 6 12 20 7  
21 40 8 42 54 9  
64 80 10 490 600 8  
50 780 840  
8 16 32 7

I ( , 840 ) 가  
, 950 , 980 1060  
가 , 850 , 1100 가  
( 44) 가 가 ( 2000 ppm )  
44, 46, 64 가 66).  
BaAl<sub>2</sub>S<sub>2</sub>O<sub>2</sub>

III 가  
7.5 mg , 420 475 , 600  
12 . 11  
, 420 475  
18 32 가  
BaAl<sub>2</sub>S<sub>2</sub>O<sub>2</sub> BaAl<sub>2</sub>S<sub>2</sub>O(OH)<sub>2</sub>  
1 2  
가 , 가

IV  
125 ppm 20 mg 3 가 1100

1 20 가 , 30 , 1100 가 , 500 1 20  
 . 13 . 13 600 가 , 1100 2 4%  
 가 . 600 0.  
 5% 가 1060 가  
 , 10% 1100 ,  
 . 1060 x-

2 가 , 1100 가 가 2 가  
 가 x- ,  
 가 ,

BaAl<sub>2</sub>S<sub>4-x</sub>O<sub>x</sub> ( , x 0.1 )  
 BaAl<sub>2</sub>S<sub>4-x</sub> 1060  
 750 1100 14 125 ppm 가  
 , 1060 840 , 950 980  
 가 1040 . 980  
 I , 840 I II , II 840  
 가 , 가 가 , 가  
 , 가 가 , 가  
 , 가 가 가  
 ted) 가 가 (frustra  
 V

5 cm x 5 cm, 0.1 cm 2  
 PCT CA00/00561(2000. 5. 12; )  
 , 09/671,971 (2001. 1. 17; 100 200 nm )  
 09/747,315 (2000. 12. 22; )  
 . 2

8 x 10<sup>-5</sup> 2 x 10<sup>-4</sup> torr 350 500  
 , 5 5.5 / 3000 4500 5 7 / 3.  
 , 0.1 0.2 x- (EDX) ,  
 , 850 2 10% 2  
 . 50 nm 2  
 3:1 , 2 2:1  
 700

32 10 1 240 가 120 Hz  
 100 1/2 260 100

(57)

1. , IIA IIB 1 , , , .

1 2. , .

1 3. 2 , .

1 4. 3 , .

1 5. 4 , .

5 6. , .

5 7. 6 , .

6 8. , 1 10 % , 0.4 1.6 .

8 9. , 0.8 1.2 .

8 10. 9 , 2 7 % .

10 11. , Ba<sub>0.97</sub>Eu<sub>0.03</sub>Al<sub>2</sub>S<sub>4-x</sub>O<sub>x</sub> , 1.5 x 2.5 .

1 12. 11 .

12 13. , .

13 14. , 가 .

14 15. , , , .

15 16. , .

16 17. , .

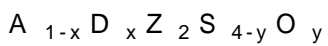
17 18. , .

18 19. , , .

19 20. , 가 .

20 21. , 가 .

22. :



A IIA IIB ;

D ;

Z Al, Ga In ;

$0.005 < x < 0.1$ ;  $1.0 < y < 3.0$  .

22 23. , .

23 24. ,  $1.6 < y < 2.4$  .

22 24 , Z Al .

22 24 , Z In .

22 26 , D .

27 27 , D .

- 28 29. , .
- 29 30. ,  $Ba_{0.97}Eu_{0.03}Al_2S_{4-y}O_y$  ,  $1.5 < y < 2.5$  .
- 22 31. 30 .
- 31 32. , .
- 32 33. ,  
가 .
- 33 34. , , , .
- 34 35. , .
- 35 36. , .
- 36 37. , .
- 37 38. , , , .
- 38 39. , 가 .
- 39 40. , 가 .
41. ,  
A, D, Z 0.01 15 , 800 1100 :  
A  $A_{1-x}D_xZ_2S_{4-y}O_y$  ,  
A IIA IIB ;  
D ;  
Z Al, Ga In ;  
 $0.005 < x < 0.1$ ;  $1.0 < y < 3.0$  .

41 42. , .

41 43. 42 , Z Al .

41 44. 42 , Z Ga .

41 45. 42 , Z In .

41 46. 45 , D .

46 47. , D ,

47 48. , .

41 49. 48 , 0.1 5 .

41 50. 48 , 850 950 .

41 51. 50 .

51 52. .

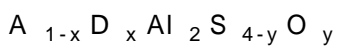
52 53. , .

54.

- ;

- 가

:



A IIA ;

D ;

$0.005 < x < 0.1; 0 < y < 1$  .

54 55.

54 56.

56 57.

57 58.

54 59.

54 60.

54 61.

60 62.

54 63.

55 , 0.1 5

, 0.01 15

, 0.2 1

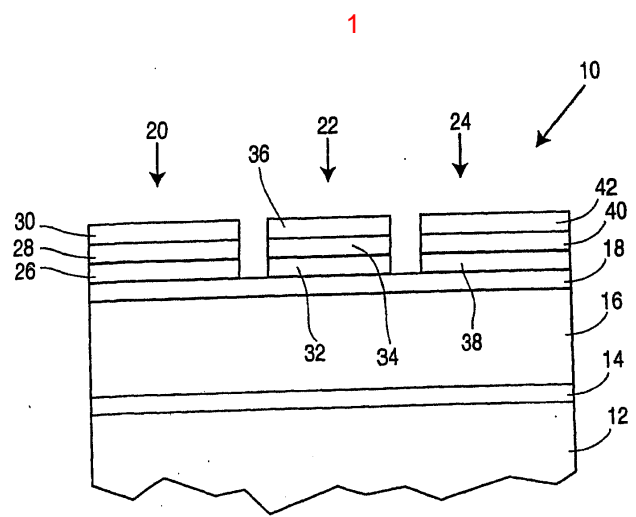
58 , 650 850

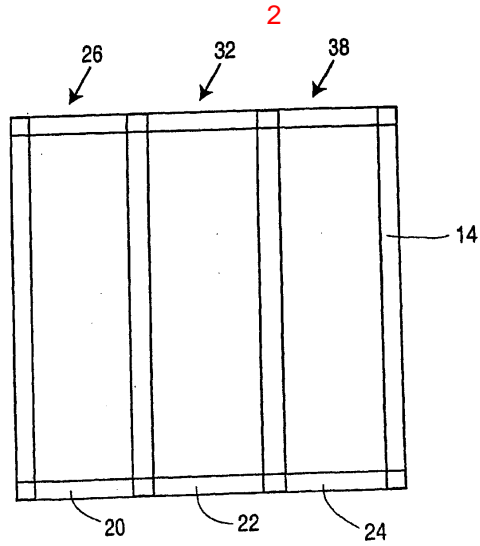
58 , 750 850

58 , y  $0 < y < 0.1$

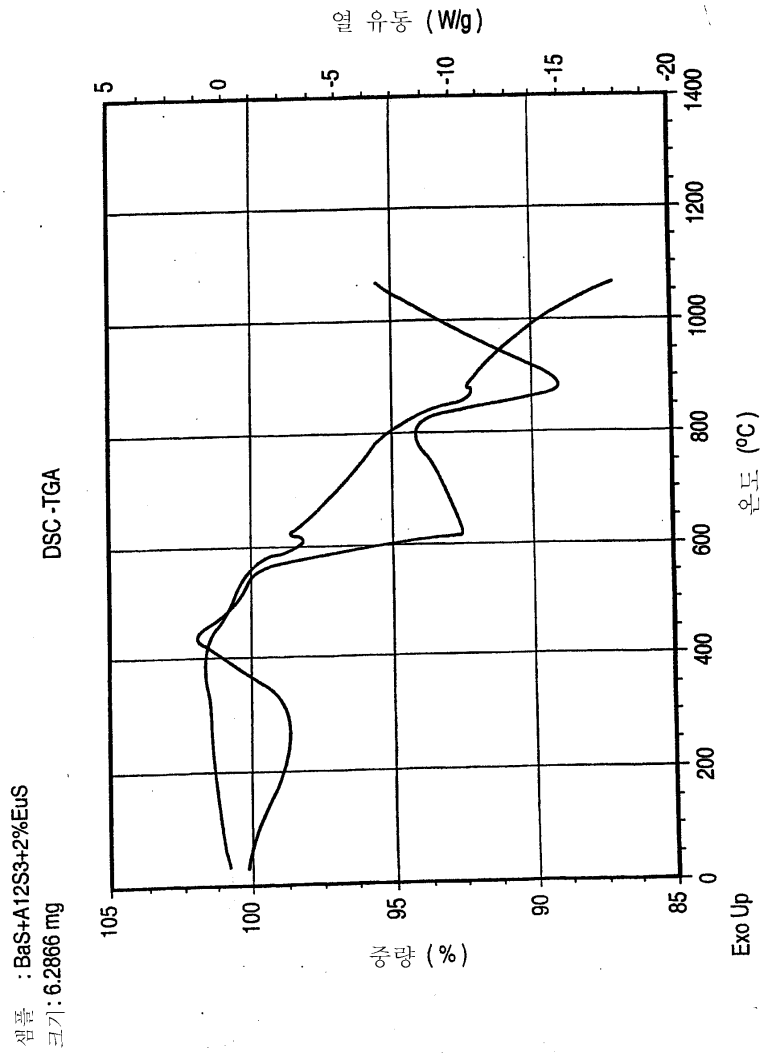
, A , D

61

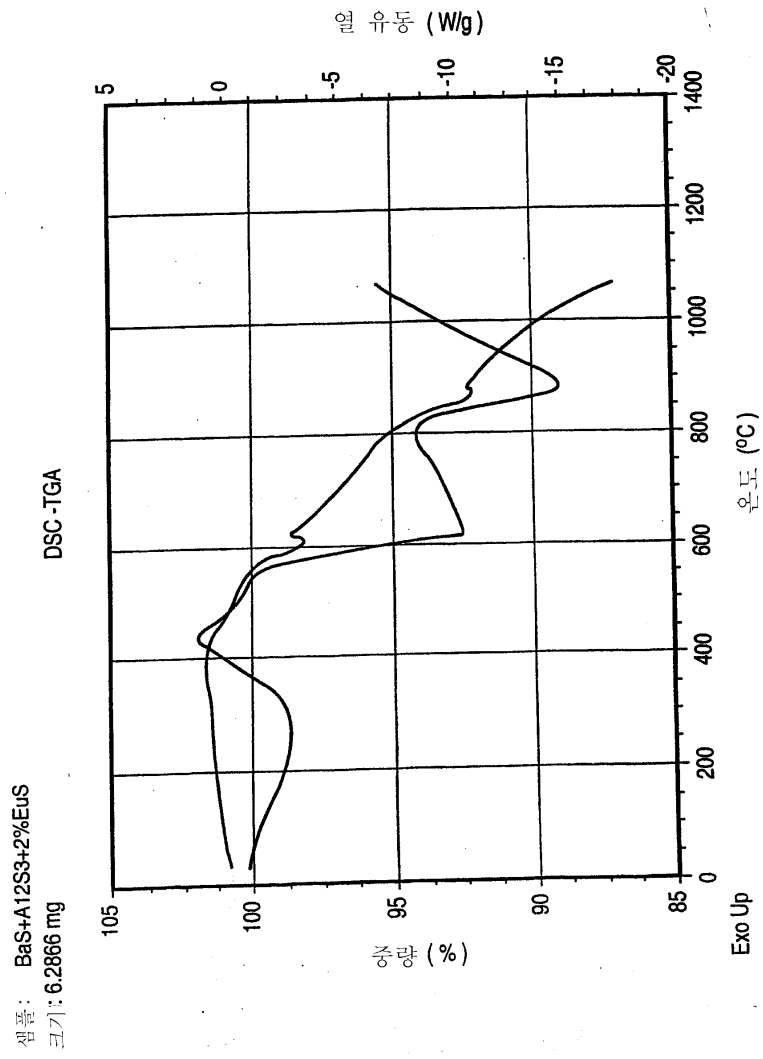


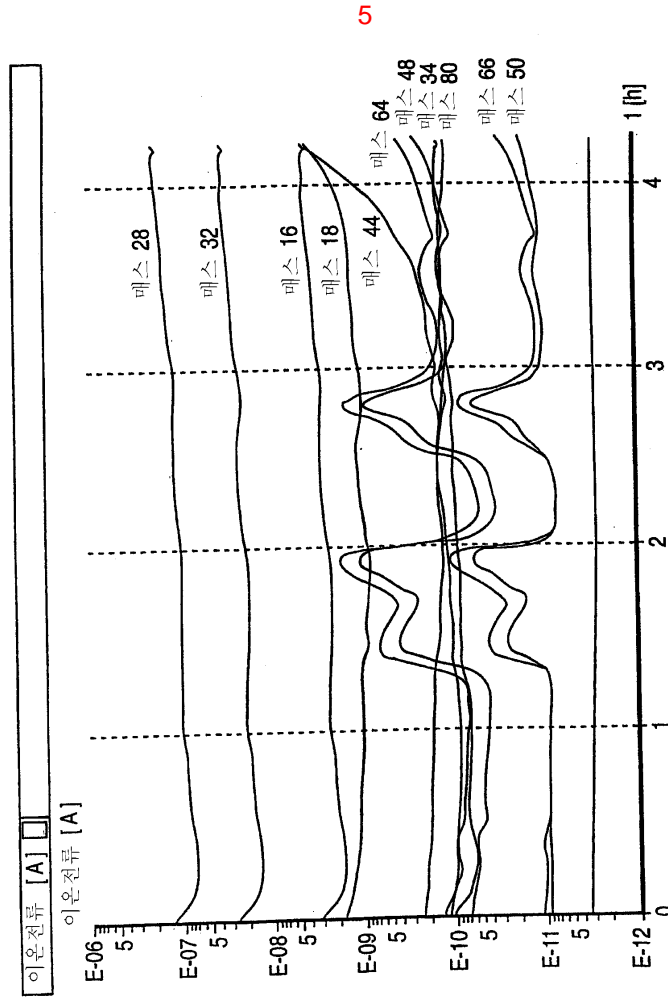


3

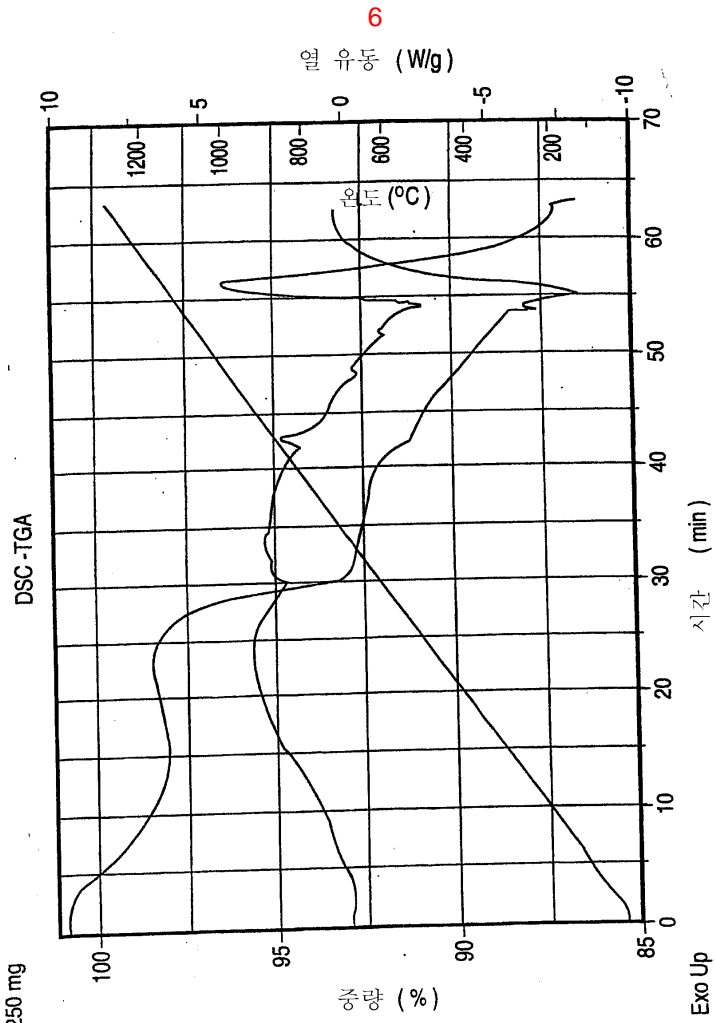


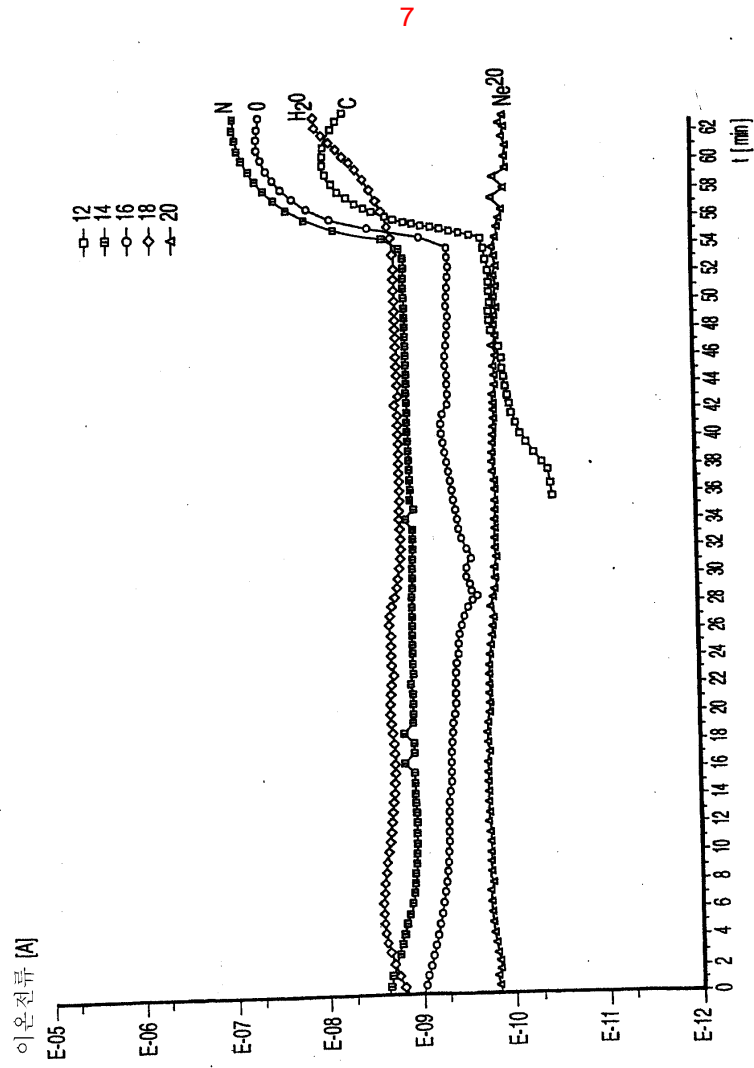
4

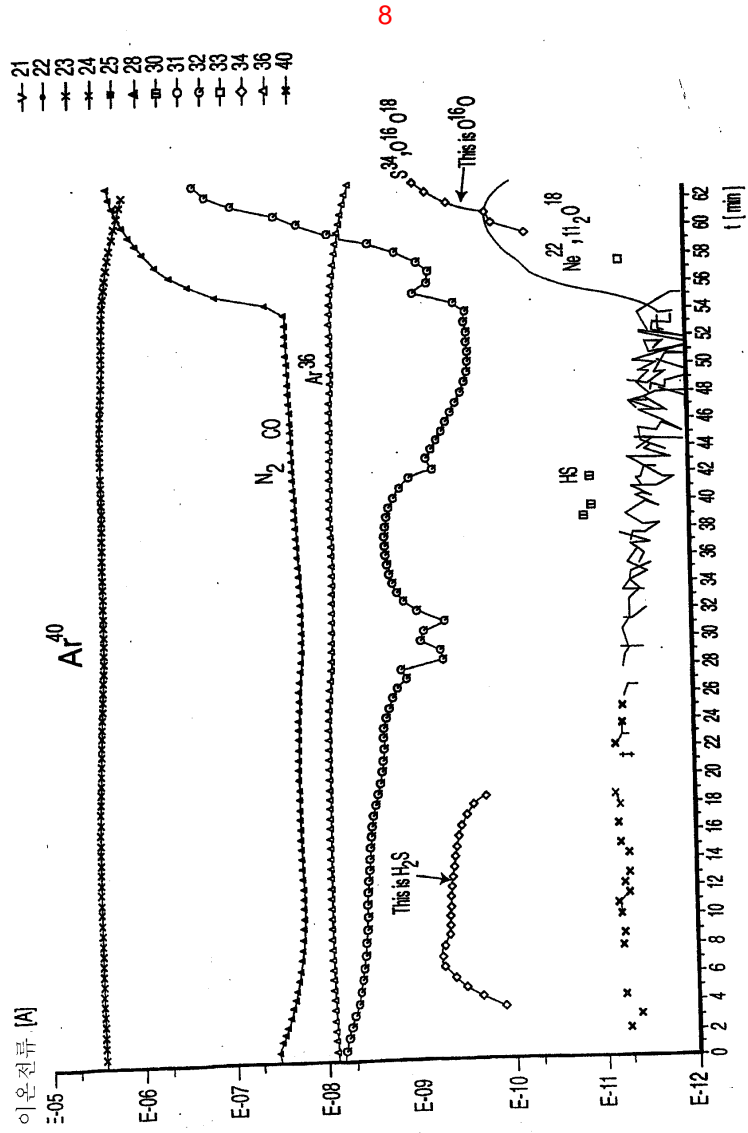


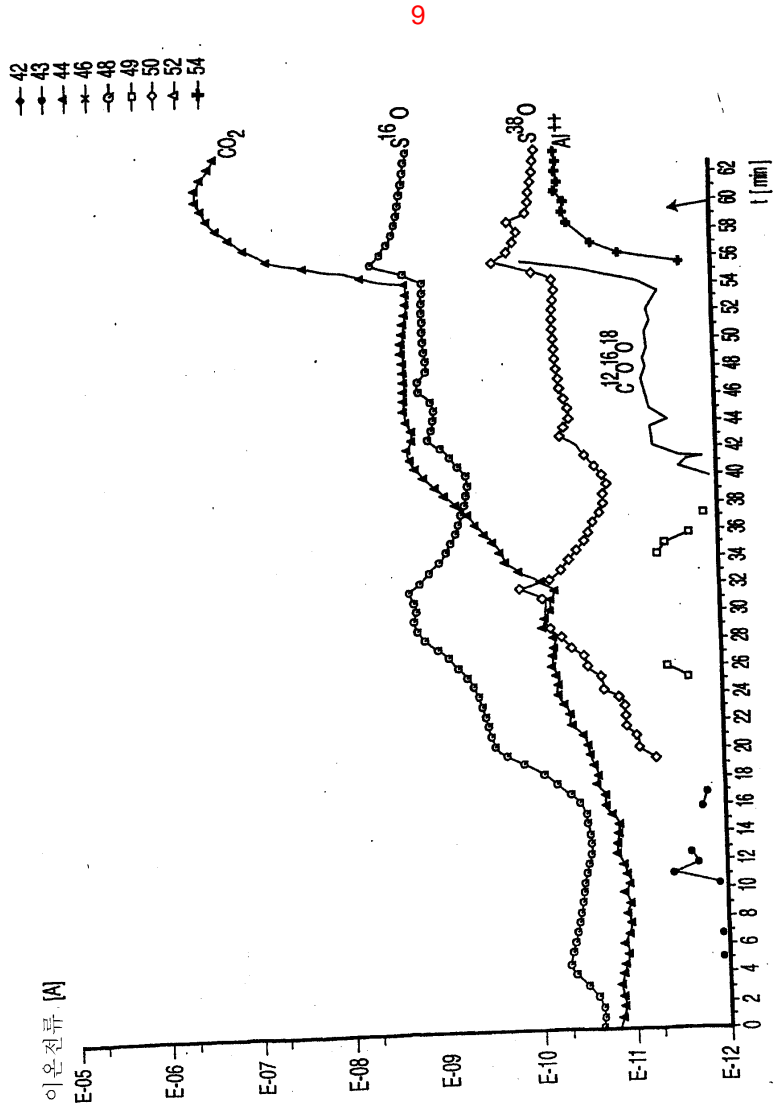


샘플 : BaS+A12S3+2%EuS  
 크기 : 4.3250 mg

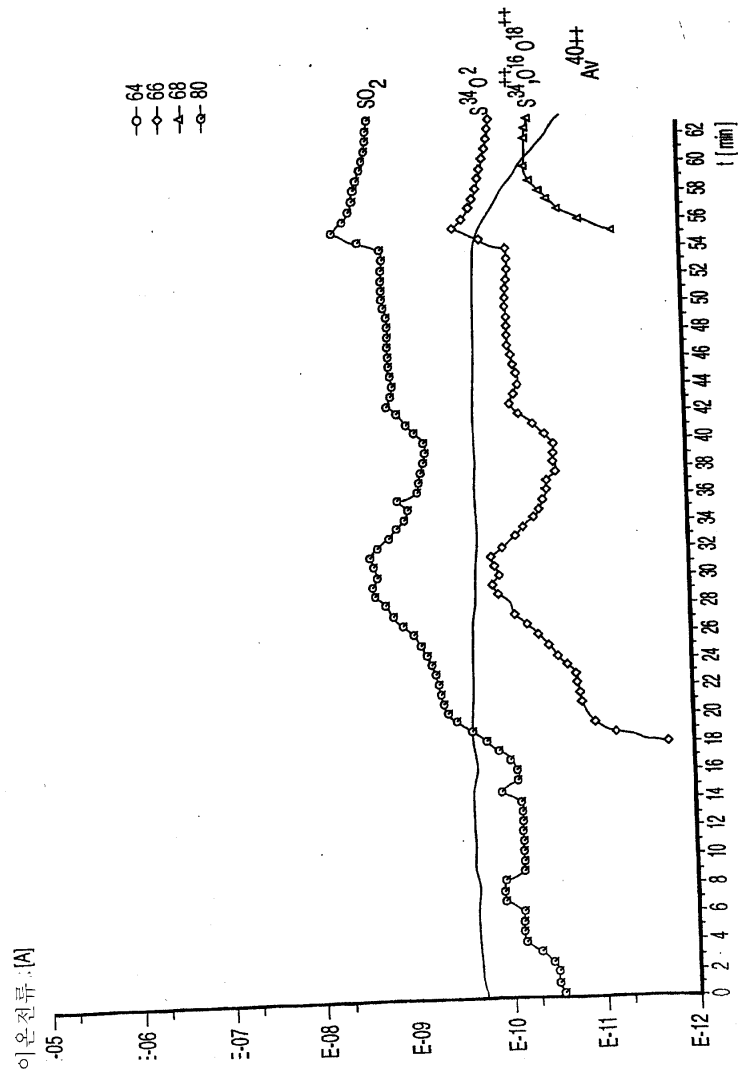


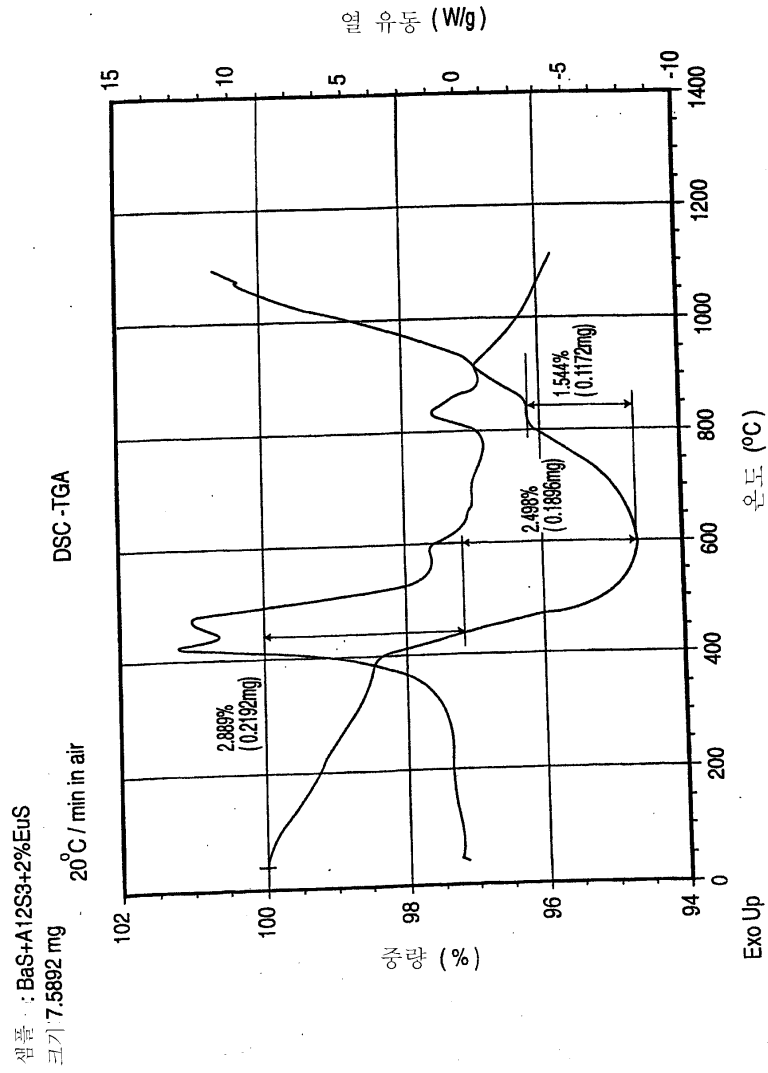


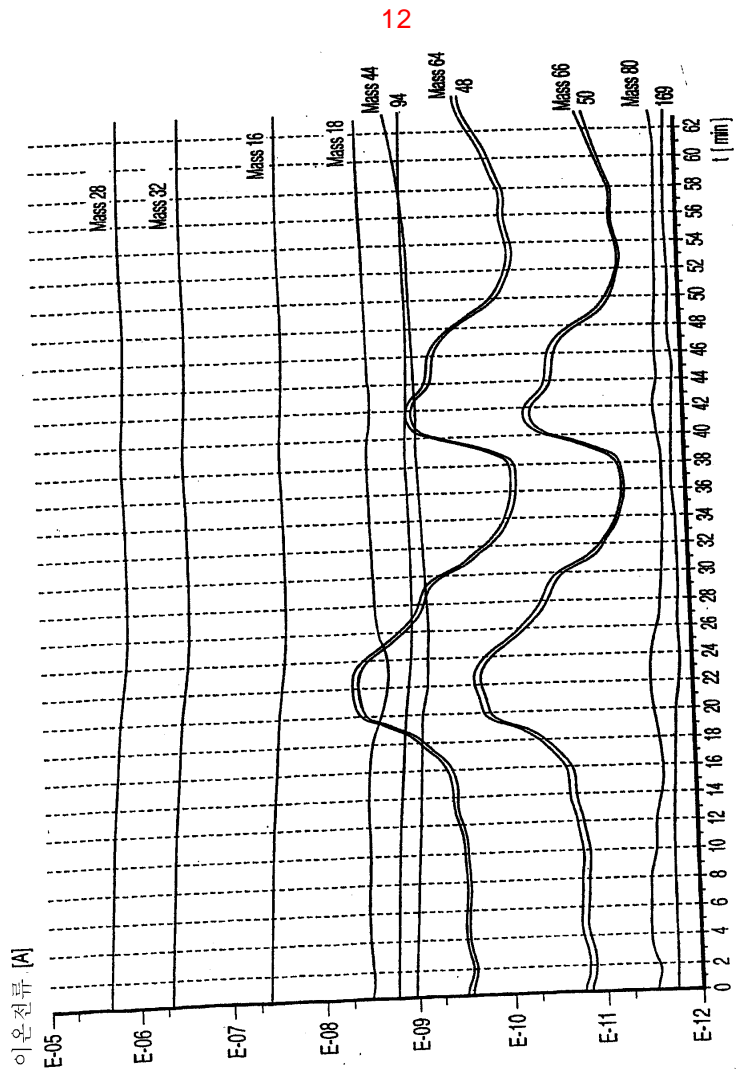


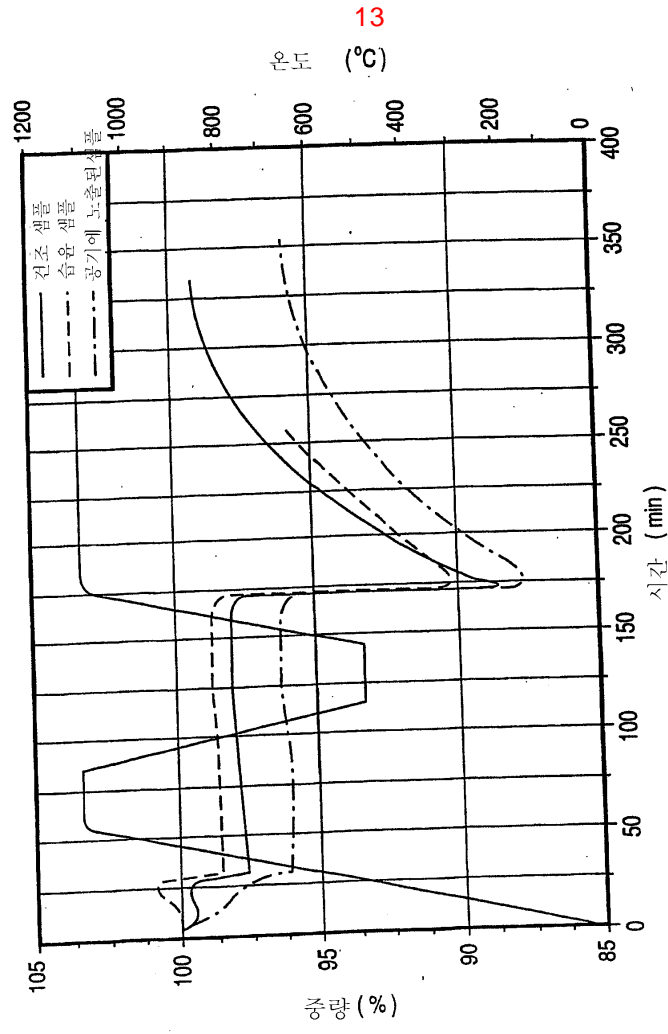


10









14

