

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl. <sup>7</sup>  
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(22)

10 - 2002 - 0035307  
2002 06 24

(30)

JP - P - 2001 - 00193771 2001 06 26

(JP)

(71)

가가 가 가

4 5 - 33

(72)

3 - 5 - 33 - 101

2 - 6 - 347

20 - 1 - 432

(74)

:

(54)

1 (異常) (檢知)

2 1 .

3 1 (isoperibolic calorimeter)

4 1 .

5 2 .

6 3 .

(heating medium)

(process fluid)

(KNO<sub>3</sub>)

, (1)

, (2)

(NaNO<sub>2</sub>),

(NaNO<sub>3</sub>),

, (3)

가

가

가

2

(gas phase)

가

가 NaNO<sub>2</sub>

가

, NO<sub>2</sub> , N<sub>2</sub>O

. 가

NO

가

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가

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7

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5

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(shell and tube type heat exchanger),

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,

가

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NaNO<sub>2</sub> 20

90 %

,

100

200

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.

, NaNO<sub>2</sub>, NaNO<sub>3</sub> KNO<sub>3</sub>

20 5

0 % NaNO<sub>2</sub>, 5 15 % NaNO<sub>3</sub>, 45 65 % KNO<sub>3</sub>, NaNO<sub>2</sub> KNO<sub>3</sub>

20 90

% NaNO<sub>2</sub>, 80 10 % KNO<sub>3</sub>, 40 % NaNO<sub>2</sub>,7 % NaNO<sub>3</sub> 53 % KNO<sub>3</sub>( 142 ), 34 % NaNO<sub>2</sub>, 13% NaNO<sub>3</sub> 53 % KNO<sub>3</sub> ( 152 ), 50 % NaNO<sub>2</sub> 50% KNO<sub>3</sub> ( 139 )

,

.

가

.

,

가

,

7

,

.

가

,

(a) HCl, Cl<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, (b) H<sub>2</sub>S

, (c)

가

, (a)

,

가

, (b)

,

, CO<sub>2</sub>

가

, (c)

,

,

, CS<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>S

가

NaNO<sub>2</sub>

,

HCl

Cl<sub>2</sub>

, H

Cl, Cl<sub>2</sub>, O<sub>2</sub>

(a)

,

2

(

) 1

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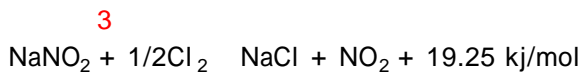
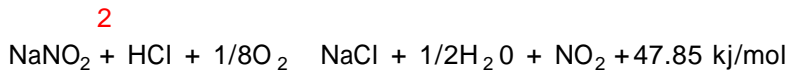
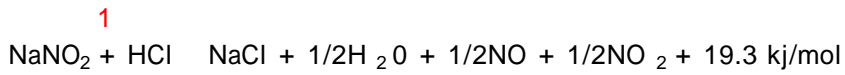
) 1

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10

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가 , 3 4 . 6 ( 8 ) 7 4 , 1 . 9 , 1 , HCl, Cl<sub>2</sub> , NaNO<sub>2</sub> ,



1 3 , 1.5 ( 1), 1.125 , 1.5 ( 2) 0.5 1 ( 3) , 1.5 ( 1), 1.125 , 4 , 7 (interlock) 가 , 1 5

5 NOx NOx 가 , N  
 ew Cosmos Co., Ltd. NOx .

가 , , NaNO<sub>2</sub> , NOx 가 , (c) 가 , NaNO<sub>2</sub> , 가 ,

1

1 HCl Cl<sub>2</sub> 가 , NaNO<sub>2</sub> 가

2

2, NaNO<sub>2</sub>, HCl, Cl<sub>2</sub> 가  
 22 (ASI Co., Ltd. RADEX - SOLO), 47 49  
 54, HCl, Cl<sub>2</sub>, 23 가, 52 28 23 가, 53  
 22, 가 52 23, 27 28 23, 23 53  
 (jacket) 24 25 가 가, 가 53  
 26  
 31, 32, 33 34, 38, 39, 40  
 41, 35, 36 37, 52 23  
 6 34 44 가 45, 4  
 23  
 53, 47 49 48, 10% 50 28 47  
 55, 47 49 ( )  
 가 ( 1) ( 2), 23 1

[ 1]

			(cc/ )			
1	가 0.5 ( / )	NaNO <sub>2</sub> : 40 %NaNO <sub>3</sub> : 7 %KNO <sub>3</sub> : 53 % : 6.81(g)	< 1>	: 10.0	: 0.6	: 0.9 : 18.9 :30.4
2	300 ( )	NaNO <sub>2</sub> : 40 %NaNO <sub>3</sub> : 7 %KNO <sub>3</sub> : 53 % : 6.30(g)	< 2>	: 4.2	: 7.1	: 7.3 : 1.4 : 20.0
			< 3>	: 6.5	: 0.4	: 0.5 : 12.6 : 20.0

&lt; 1&gt;

1, 1 23 1, 0.5 / 가  
 가 70, 1 23, 53  
 3  
 3 ( ),  
 NOx 가

< 2 >

1, 2, 23, 2 ( : 280 ) , 1 .

2, 4 .

4 NOx 가 , 2 ( ), , NOx 가 1 ( ), , NOx 가 .

1 2 , 1 2 NOx , 1 가 70 (가 ), 2 280 ( ) NOx 300 350 ) . , HCl , Cl<sub>2</sub> ( , Cl<sub>2</sub> ) ( , NOx , 가 .

2

2 , H<sub>2</sub>S 가 가 NaNO<sub>2</sub> 가 , 가 가 .

5 .

5 , 61 , NaNO<sub>2</sub> H<sub>2</sub>S 가 62, 64 , 62 (熱電對) 63, 62 H<sub>2</sub>S 65 . 65 , 66 (du Pont de Nemours and Company Tedler (F ) .

H<sub>2</sub>S 67 H<sub>2</sub>S . H<sub>2</sub>S 67 64 , 68 , H<sub>2</sub>S 68, 69 70 . 71 .

:

(1) (NaNO<sub>2</sub> : 40 %, NaNO<sub>3</sub> : 7 %, KNO<sub>3</sub> : 53 %) , 62 .

(2) 62 61 , 가 .

(3) 101 61 , 61 .

(4) 가 , 가 ( 72 73 ) , 102 .

(5) H<sub>2</sub>S 62 .

(6) H<sub>2</sub>S 66 .

2

[ 2]

	3	4	5	6
	6g	9.1g	16g	0
	400	410	400	
H <sub>2</sub> S	20~30cm <sup>3</sup> /	20~30cm <sup>3</sup> /	20~30cm <sup>3</sup> /	
			가	
	N <sub>2</sub> OCO <sub>2</sub> H <sub>2</sub> O	N <sub>2</sub> OCO <sub>2</sub> H <sub>2</sub> O	NO <sub>2</sub> 330ppmNO 170ppmSO <sub>2</sub> 50ppm가 0.7%	H <sub>2</sub> S
	N <sub>2</sub> O 가 .	N <sub>2</sub> O 가 .	H <sub>2</sub> S (0.01 ppm ).	

2 , 6 ( ) H<sub>2</sub>S  
 , 3 5 , N<sub>2</sub>O, CO<sub>2</sub>, H<sub>2</sub>O, NO, SO<sub>2</sub> 가  
 (N<sub>2</sub>O , NO<sub>2</sub> NO ) 가 , NaNO<sub>2</sub>  
 H<sub>2</sub>S ,

3

3 , 가 NaNO<sub>2</sub> 가  
 , 가 .

6

6 , 61 , NaNO<sub>2</sub> 가  
 62, 63, 62

64 . 62  
 65 , 66

75 가 , 74 ,  
 가 74 64 , 68,  
 69 70 . 68 ,  
 71 .

, :

(1) (NaNO<sub>2</sub>: 40 %, NaNO<sub>3</sub>: 7 %, KNO<sub>3</sub>: 53 %) , 62 .

(2) 62 61 , 가 .

(3) 103 61 , 61 .

(4) 가 , 가 ( 72 73 )  
 , 104 .

(5) 62 .

(6) 66 .

3 .

[ 3]

	7	8	9
	6g	10g	0
	420	420	
	20~100cm <sup>3</sup> /	20~100cm <sup>3</sup> /	
		, 가	
	, CO <sub>2</sub> , N <sub>2</sub> O, CS <sub>2</sub> , , CH <sub>4</sub> , H <sub>2</sub> S, , S, O <sub>2</sub> , , H <sub>2</sub> O, , , 1,2 -	7 가 .10ppm NO <sub>2</sub> .7% 가 가	, CO <sub>2</sub> , H <sub>2</sub> S, H <sub>2</sub> O, , CS <sub>2</sub>
	NO <sub>2</sub> 가 .	NO (5ppm ) .	

3 , ( ) 9 , , CO<sub>2</sub>, H<sub>2</sub>S, H<sub>2</sub>O, , CS<sub>2</sub> . , 7 8 , , CO<sub>2</sub>, N<sub>2</sub>O, CS<sub>2</sub>, , CH<sub>4</sub>, H<sub>2</sub>S, , , SO<sub>2</sub>, , H<sub>2</sub>O, , , 1,2 - , , NO<sub>2</sub> 가 . , (NO<sub>2</sub>, N<sub>2</sub>O), CS<sub>2</sub>, CH<sub>4</sub> H<sub>2</sub>S , NaNO<sub>2</sub> .

1

, 1 .

150 kg/h HCl 44 kg/h O<sub>2</sub> , 가 1 ,  
. 50 % NaNO<sub>2</sub> 50 % NaNO<sub>3</sub> , 340  
4 . New Cosmos Co., Ltd. NOx ,  
4 7 . 8 9 ,  
250 , 1 (shell) ,  
1 350 , 340 . 23 kg/h  
HCl, 124 kg/h Cl<sub>2</sub>, 16 kg/h O<sub>2</sub> 31 kg/h H<sub>2</sub>O ,  
, NaNO<sub>2</sub> HCl / Cl<sub>2</sub>  
NOx 가 , NOx 5 , NOx



(57)

1.

(異常) (檢知)

(gas phase)

2.

1

1

가

3.

2

20

90

%

100

200

4.

1

NOx

5.

:

;

;

;

6.

5

가

7.

6

20

90

%

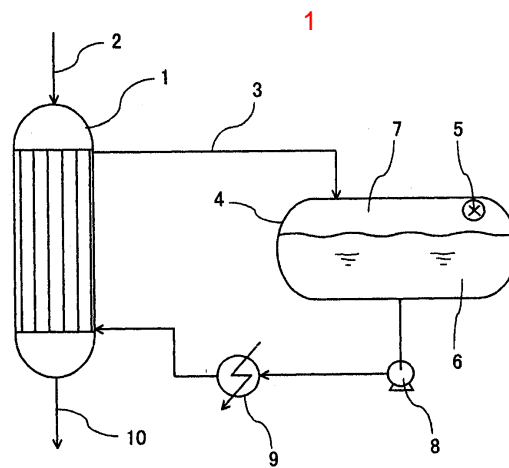
100

200

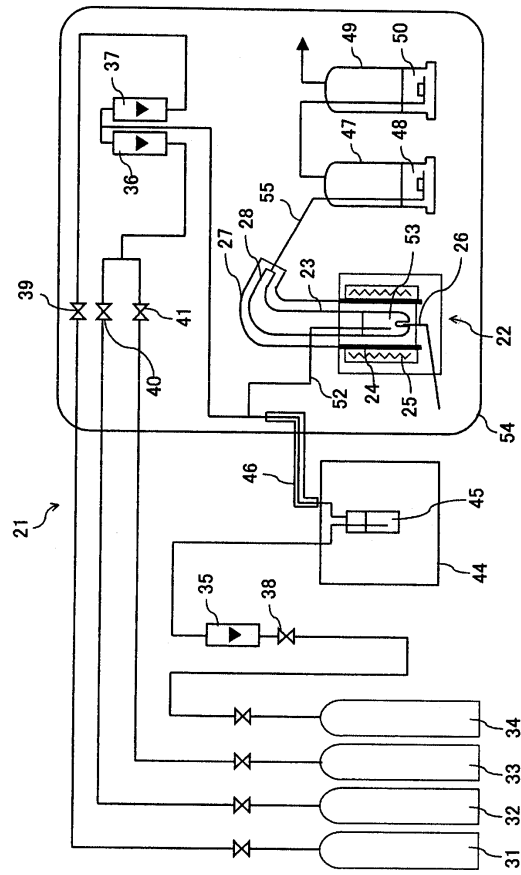
8.

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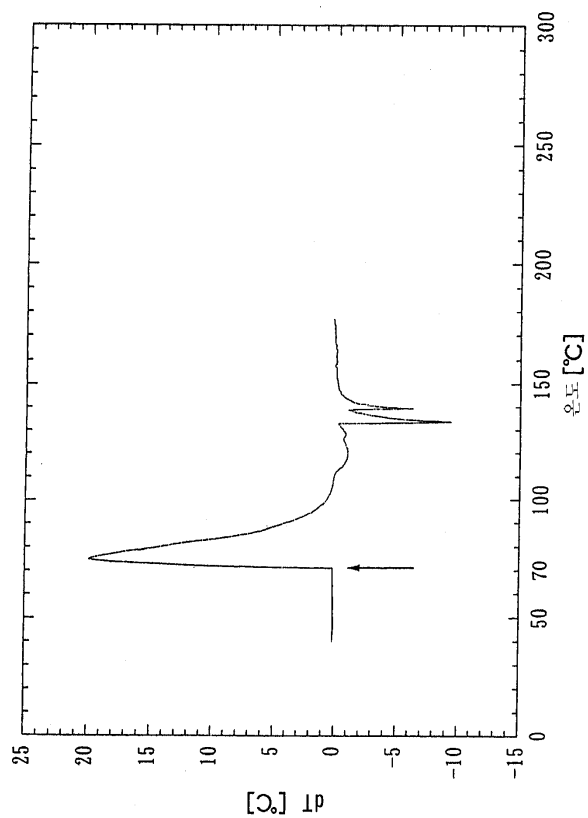
NOx



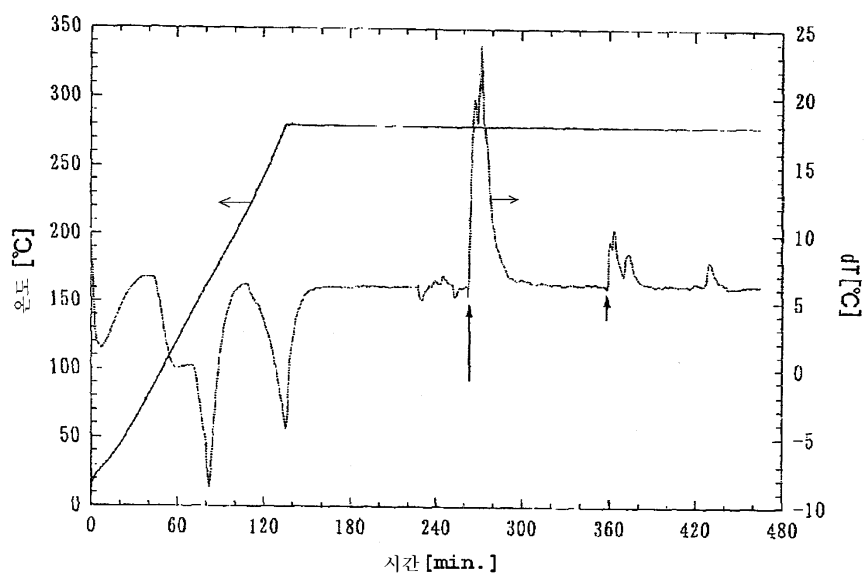
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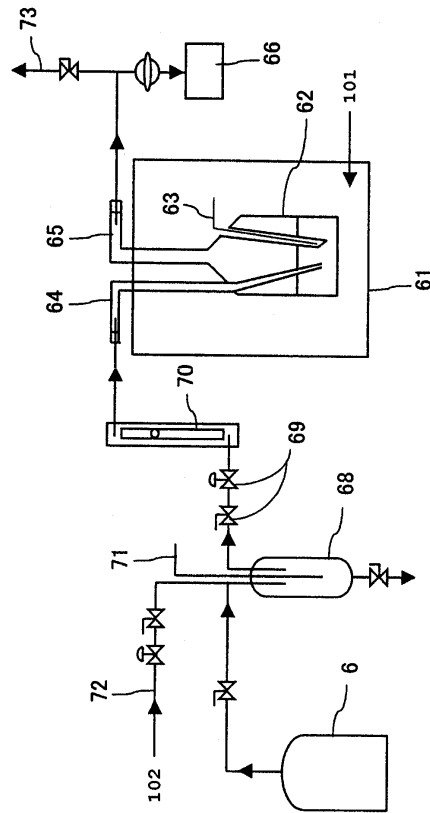
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4



5



6

