

**(19)**  
**(12)**

**(KR)**  
**(B1)**

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(24) 2004 08 20

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(21)	10-1996-0046012	(65)	10-1997-0021046
(22)	1996 10 12	(43)	1997 05 28

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(30)	9500853	1995 10 13	(BE)
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(73)	- 6411	1	
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(72)	( . ) (6191 )	15	
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	(6049 )	1	
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	(6051 )	. 22	
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(74)

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(54)

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10 %

, 1 24

EP-A-4105

가

( , )가 가

가

10 %

1 24

1 12

35% 가 35% 가 45% 가 15% 가 20% 가

5 12

가

가

(

1

,

가

가  
0.1 - 1000 ppm  
pm  
가  
가  
가  
가  
5  
300  
15  
120  
0.02  
, 0.05  
60  
180  
0.25  
, 60  
100

0.1 - 0.6 MPa, (flashing))

70 kg 190 mmol NaOH(1500 mmol NaOH/kg) (15 %) 107 ml  
(OL) 250 ml (CHHP), 40 mmol (ON) 90 mmol  
1 11 \* 10<sup>-3</sup> min<sup>-1</sup> 가 CHHP 가  
A  
NaOH(1500 mmol NaOH/kg) 107 ml 가 가  
CHHP 가 1 8 \* 10<sup>-3</sup> min<sup>-1</sup>  
II  
70 kg 107 ml NaOH(1500 mmol NaOH/kg), (15 %) Cr(NO<sub>3</sub>)<sub>3</sub> (10 ppm Cr  
(ON) 90 mmol (OL) 190 mmol (CHHP), 40 mmol 가 CHHP  
가 1 13 \* 10<sup>-3</sup> min<sup>-1</sup> 가  
B  
NaOH(1500 mmol NaOH/kg) Cr(NO<sub>3</sub>)<sub>3</sub> (10 ppm Cr) 107 ml 가 가  
, II CHHP 가 1 8 \* 10<sup>-3</sup> min<sup>-1</sup>  
-1

가 500 ml  
(overflow) 가  
1  
III  
kg 153 mmol (CHHP), 53 mmol (ON) 105 mmol  
(OL) 17.0 ml/min 1 가 , NaOH(750  
mmol NaOH/kg), Na<sub>2</sub>CO<sub>3</sub> (354 mmol/kg), CoSO<sub>4</sub> (4.3 ppm Co) (C  
C<sub>6</sub>)( 20 %) 1.95 ml/min 1 가 CHHP  
69 2 66 140 \* 10<sup>-3</sup> min<sup>-1</sup> 1 CHHP 가  
1  
95 %

kg	182 mmol (OL)	16.7 ml/min (C <sub>1</sub> C <sub>6</sub> )	(CHHP), 42 mmol 1 (365 mmol/kg Na <sub>2</sub> CO <sub>3</sub> )	1 67	(ON) 86 mmol , 1 2 66	kg pm Co) 1.93 ml/min 0 <sup>-3</sup> min <sup>-1</sup>	가 가 CHHP CHHP 95 %	가 NaOH(750 mmol NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (4.3 ppm Co) (20 %)	III 131 * 1
kg	182 mmol (OL)	16.9 ml/min (C <sub>1</sub> C <sub>6</sub> )	(CHHP), 42 mmol 1 (375 mmol/kg Na <sub>2</sub> CO <sub>3</sub> )	1 67	(ON) 86 mmol , 1 2 66	kg 1.90 ml/min 110 * 10 <sup>-3</sup> min <sup>-1</sup>	가 CHHP CHHP 93 %	가 NaOH(750 mmol NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (4.3 ppm Co) (15 %)	III
kg	153 mmol (OL)	16.6 ml/min 1.94 ml/min 66 60 * 10 <sup>-3</sup> min <sup>-1</sup>	(CHHP), 53 mmol 1 1 CHHP CHHP 87 %	1 69	(ON) 105 mmol , 1 2 1	kg CoSO <sub>4</sub> (4.3 ppm Co) 가 1	가 NaOH(750 mmol NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (365 mmol/kg)	CoSO <sub>4</sub> (4.3 ppm Co) 가	III
1000 ml	Cr/Ni 가								
kg	153 mmol (OL)	75.3 ml/min 15.6 ml/min 1 1.97 min <sup>-1</sup> (90)	(CHHP), 53 mmol 75.3 ml/min 1 CHHP 95 %	1 85	(ON) 105 mmol 가 1 1.97 min <sup>-1</sup> (90)	kg NaOH(625 mmol (C <sub>1</sub> C <sub>6</sub> )) 85	NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (445 mmol/kg), CoSO <sub>4</sub> (10 ppm Co) 15 % CHHP CHHP VII	2.63 min <sup>-1</sup>	VI
kg	153 mmol (OL)	75.3 ml/min (12 %) 15.6 ml/min 1 1 1 5.6	(CHHP), 53 mmol 75.3 ml/min 1 CHHP 98 %	1 85	(ON) 105 mmol 가 1 1 5.6	kg NaOH(935 mmol 15.6 ml/min 1 5.6	NaOH/kg), CoSO <sub>4</sub> (10 ppm Co) 105 CHHP 5 min <sup>-1</sup> (90 2.49 min <sup>-1</sup> ) VIII	2.63 min <sup>-1</sup>	VII
kg	153 mmol (OL)	76.5 ml/min 15.3 ml/min 1 1.78 min <sup>-1</sup> (90)	(CHHP), 53 mmol 76.5 ml/min 1 CHHP 95 %	1 85	(ON) 105 mmol 가 1 1.78 min <sup>-1</sup> (90)	kg NaOH(750 mmol (C <sub>1</sub> C <sub>6</sub> )) 85	NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (315 mmol/kg), CoSO <sub>4</sub> (10 ppm Co) 25 % CHHP D	2.37 min <sup>-1</sup>	VIII
kg	153 mmol (OL)	74.5 ml/min 15.0 ml/min 1 1 0.45 min	(CHHP), 53 mmol 74.5 ml/min 1 CHHP 95 %	1 85	(ON) 105 mmol 가 1 1 0.45 min	kg NaOH(660 mmol 15.0 ml/min 1 0.45 min	NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (420 mmol/kg) 96 P -1 (90 0.32 min <sup>-1</sup> ) D	0.45 min	D
kg	153 mmol (OL)	74.5 ml/min 15.0 ml/min 1 1 0.45 min	(CHHP), 53 mmol 74.5 ml/min 1 CoSO <sub>4</sub> (10 ppm Co) 가	1 85	(ON) 105 mmol 가 1 1 0.45 min	kg NaOH(1600 mmol 15.0 ml/min 1 0.45 min	NaOH/kg), Na <sub>2</sub> CO <sub>3</sub> (630 mmol/kg) E	0.45 min	E

HP 95 0.73 min<sup>-1</sup> CHHP 가 1 0.97 mi  
n<sup>-1</sup> (90 0.73 min<sup>-1</sup>) CHHP 92 %

(57)

1.

, 10 % 1

2.

1 ,

1 24

3.

1 2 ,

4.

1 2 ,

가 45 %

5.

1 2 가 20 % , 35 %

6.

1 2 , OH , 가 0.1 2 N ,

7.

1 2 ,

0.1 1000 ppm

8.

1 2 ,

, 가 0.3 MPa 5 MPa , 120 2

00