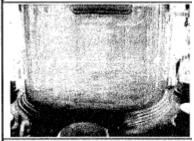
/26

Pulverized rock wool powder



After introduction of pulverized rock wool powder



After introduction of 3.3 g of pulverized rock wool powder (total 10 g)



During halt in operation

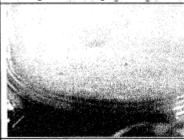
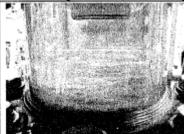


Fig. 3.3.3.2 Test of effect of minute rock wool (PL#3.17-1)

During introduction of 3.3 g of pulverized rock wool powder



After introduction of 3.3 g of pulverized rock wool powder (total 6.7 g)

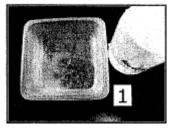


After introduction of 3.1 g of calcium silicate



/27

Iron nitrate reagent



While standing following the addition of NaOH aqueous solution

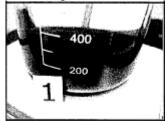


Fig. 3.3.4.1 Preparation of iron hydroxide

Immediately following introduction of NaOH into copper nitrate aqueous solution (Cu 1g/ pure water 1L) (1)



3 min after introduction of NaOH (production of colorless precipitate)

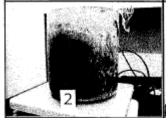
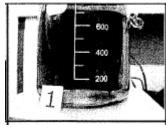
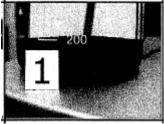


Fig. 3.3.4.2 Preparation of copper oxide

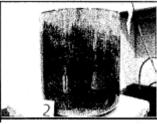
Iron nitrate aqueous solution (Fe 1g/pure water 1L)



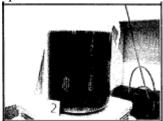
Same as left.

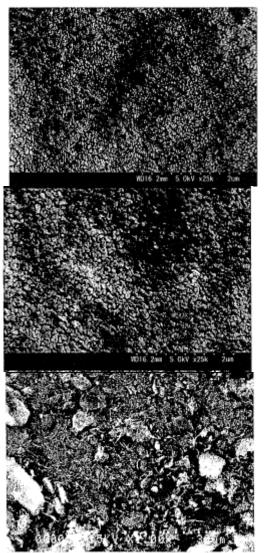


Immediately following introduction of NaOH (2)



Standing after having been stirred with spoon.





Iron hydroxide colloid

Copper oxide colloid

Calcium silicate particles

Fig. 3.3.4.3 Enlarged views of colloids and particles prepared (Photos of iron hydroxide and copper oxide were taken at a magnification of about 15 times that of the photo of calcium silicate)

- PL# Test conditions
- 3.18-1 Rock wool (g) Preparation method Iron hydroxide (g) as Fe

59 Wet pulverization e First 1

Total

1

Test method Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Iron hydroxide was introduced through the debris inlet 5 min after ultrasonic dispersion.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

Pure water system

3.18-2 Rock wool (g) 59 Preparation method Wet pulverization Iron hydroxide (g) as Fe First 0.2 0.2 Second Third 0.2 Fourth 0.2 Total 0.8

Test method

Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Iron hydroxide was introduced through the debris inlet 5 min after ultrasonic dispersion.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4) Pure water system

Pure water system

3.18-3 Rock wool (g) 59 Preparation method Wet pulverization Iron hydroxide (g) as Fe First 0.4 Second 0.2

Total

0.6

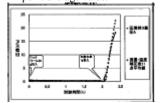
Test method Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Iron hydroxide was introduced through the debris inlet.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

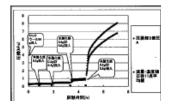
Pure water system

Complete test

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1 g of iron hydroxide introduced (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.2 g of iron hydroxide introduced (third capsule) 0.2 g of iron hydroxide introduced (total 0.4 g) (fourth capsule) 0.2 g of iron hydroxide introduced (total 0.6 g) (fifth capsule) 0.2 g of iron hydroxide introduced (total 0.8 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.4 g of iron hydroxide introduced (third capsule) 0.2 g of iron hydroxide introduced (total 0.6 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

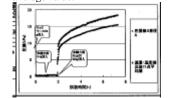


Fig. 3.3.4.4 Results I of pressure loss test employing various colloidal particles

Rock wool (g) 3.18-4 Preparation me Iron hydroxide (g) as Fe

Test method

		59
ethod	Wet pulve	rization
particles	First	0.4
	Second	0.2
	Third	0.2
	Total	0.8

Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Iron hydroxide was introduced through the debris inlet 5 min after ultrasonic dispersion.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

Pure water system Duplicate test of PL#3.18-2

3.18-5 Rock wool

Rock wool (g)		59
Preparation method	Wet pulve	rization
Copper oxide particles	First	0.3
(g) as Cu	Second	0.3
	Third	0.3
	Fourth	0.6
	Fifth	0.6
	Sixth	0.6
	Seventh	0.6
	Total	3.5

Test method

Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Copper oxide was introduced through the debris inlet.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

Pure water system 3.18-6

.18-6	Rock wool (g)		59
	Preparation method	Wet pulverization	
	Copper oxide particles	First	1.2
	(g) as Cu	Second	0.6
		Third	0.6
		Fourth	0.6
		Fifth	0.6
		Sixth	0.6
		Total	4.2
	Test method		
	Pressure loss measuring e	element was b	ouilt into

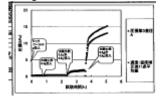
the device. Rock wool was introduced through debris inlet. Copper oxide was introduced through the debris inlet.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

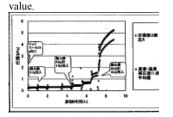
Pure water system Repeat test of PL#3.18-6

Fig. 3.3.4.4 Results I of pressure loss test employing various colloidal particles (cont'd)

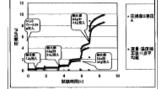
[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.4 g of iron hydroxide introduced (third capsule) 0.2 g of iron hydroxide introduced (total 0.6 g) (fourth capsule) 0.2 g of iron hydroxide introduced (total 0.8 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.3 g of copper oxide introduced (third capsule) 0.6 g of copper oxide introduced (total 1.5 g) (fourth capsule) 0.6 g of copper oxide introduced (total 3.3 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average

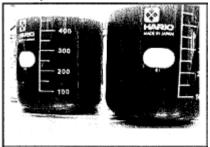


[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1.2 g of copper oxide introduced (third capsule) 0.6 g of copper oxide introduced (total 2.4 g) (fourth capsule) 0.6 g of copper oxide introduced (total 3.6 g) (fifth capsule) 0.6 g of copper oxide introduced (total 4.2 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



/30

Iron hydroxide



When 1 g of iron hydroxide as Fe introduced



The screen before and after introduction of iron hydroxide

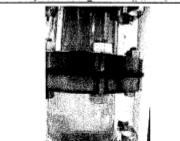


Fig. 3.3.4.5 Appearance of pressure lost test I employing various colloidal particles (PL#3.18-1)

Following introduction of rock wool, flow rate 4 L/min



Same as left

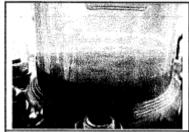


20 min after introduction of iron hydroxide



/32

Rock wool introduction, flow rate 4 L/min



1 hour after introduction of 1.2 g of copper oxide as Cu



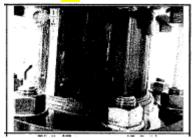
1.5 hours after introduction of 2.4 g of copper oxide as Cu



1 hour after introduction of 3.6 g of copper oxide as Cu



During introduction of 1.2 g of copper oxide as Cu



1 hour after introduction of 1.8 g of copper oxide as Cu



1 hour after introduction of 3.0 g of copper oxide as Cu



1 hour after introduction of 4.2 g of copper oxide as Cu



Fig. 3.3.4.6 Appearance of pressure loss test I employing various colloidal particles (PL#3.18-6)

PL#	Test conditions
3.19-1	Rock wool (g)
	Preparation method

Test method

Rock wool (g)

Test method

Preparation method

ICAN#5 test water

3.19-2-1

ICAN#5 test water

Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Test water in the tank following an ICAN#5 test was stirred and then sent to PL and passed through.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

ICAN#5 test water was employed.

Complete test

59

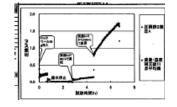
30

700 L

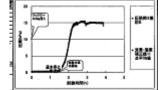
300 L

Wet pulverization

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) Operated at a flow velocity of 0.37 cm/s (with start of water flow). (third capsule) Flow velocity changed from 0.37 cm/s to 2 cm/s (text at bottom) Water supply halted (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) Start of supplying of test water (text at bottom) Water supply halted (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. Test water in the tank following an ICAN#5 test was sent to PL and passed through.

Wet pulverization

First

Flow velocity cm/s (flow rate L/min) 0.56(6.1)[illegible]

ICAN#6 test water was employed

3.19-2-2 Rock wool (g) Preparation method Wet pulverization ICAN#6 test water First

30 700 L

Test method

Following test 3.19-2-1, rock wool was introduced through debris inlet to pressure loss measuring element, and water was then supplied.

Flow velocity cm/s (flow rate L/min) 0.56(6.1) [illegible]

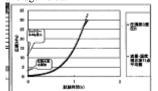
ICAN#6 test water was employed

3.19-3 Rock wool (g) 30 Preparation method Wet pulverization ICAN#7 test water First 700 L

Test method

Pressure loss measuring element was built into the device. Rock wool was introduced through debris inlet. After supplying pure water, the test water in the tank following an ICAN#7 test was sent to PL and passed through.

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) Start of supplying of test water (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) Start of supplying of test water (text at bottom) Water supply halted (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average

value.

/33

Flow velocity cm/s (flow rate L/min) 2(21.8) 2 (21.8) ICAN#7 test water was employed

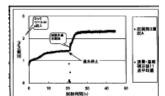
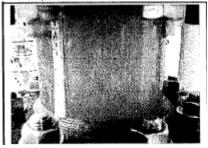


Fig. 3.3.5.1 Results of pressure loss tests employing ICAN test water

ICAN#5 test water



Introduction of test water, flow rate 4 L/min, 0 h

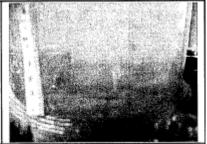


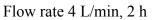
Introduction of test water, flow rate 21.76 L/min, 2 h



Fig. 3.3.5.2 Pressure loss test employing ICAN test water (PL#3.19-1)

Rock wool introduction







PL# Test conditions

3.20-1 Rock wool (g)

Preparation method Iron hydroxide (g) as Fe (red text indicates

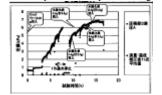
(red text indicates introduction from tank)

Dry pulverization			
First	0.4		
Second	0.4		
Third	0.2		
Fourth	0.2		
Fifth	0.4		
Sixth	0.4		
Seventh	0.4		
Eighth	0.4		
Ninth	0.4		
Tenth	0.4		
Total	3.6		

Complete test

30

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) Iron hydroxide successively introduced (third capsule) 0.4 g of iron hydroxide introduced (total 2.4 g) (fourth capsule) 0.4 g of iron hydroxide introduced (total 2.8 g) (fifth capsule) 0.4 g of iron hydroxide introduced (total 3.2 g) (sixth capsule) 0.4 g of iron hydroxide introduced (total 3.2 g) (sixth capsule) 0.4 g of iron hydroxide introduced (total 3.6 g) (text at bottom) Water passage halted (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



Rock wool was introduced onto screen.

Test method

Pressure loss measuring element was built into the device. The iron hydroxide was dispersed for 5 minutes with ultrasound, and then introduced through the debris inlet and from the tank.

Flow velocity cm/s (flow rate L/min) 2(21.8) 2 (21.8)

Pure water system

Rock wool (g)		59
Preparation method	Dry pulver	ization
Iron hydroxide (g) as Fe	First	0.8
(red text indicates	Second	0.4
introduction from tank)	Third	0.8
	Fourth	0.8
	Fifth	0.8
	Total	3.6

Test method

Rock wool was introduced onto screen. Pressure loss measuring element was built into the device. The iron hydroxide was dispersed for 5 minutes with ultrasound, and then introduced through the debris inlet and from the tank. Flow velocity cm/s (flow rate L/min) 2(21.8)

2 (21.8)

Pure water system

Test method

3.20-3 Rock wool (g) Preparation method Copper oxide (g) as Cu

3.20-2

	-
Dry pulver	ization
First	1
Second	1
Third	1
Fourth	1
Total	4

59

Rock wool was introduced onto screen. Pressure loss measuring element was built into

the device. The copper oxide was dispersed for 5 minutes with ultrasound, and then introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 2(21.8)

2 (21.8) Pure water system [(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.8 g of iron hydroxide introduced (total 1.2 g) (fourth capsule) 0.8 g of iron hydroxide introduced (total 2.0 g) (fifth capsule) 0.8 g of iron hydroxide introduced (total 2.8 g) (sixth capsule) 0.8 g or iron hydroxide introduced (total 3.6 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value

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73	r	21		
\sim		0		126
8	4			

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1.0 g of copper oxide introduced as Cu (third capsule) 1.0 g of copper oxide introduced as Cu (total 2.0 g) (fourth capsule) 1.0 g of copper oxide introduced as Cu (total 3.0 g) (fifth capsule) 1.0 g of copper oxide introduced as Cu (total 4.0 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

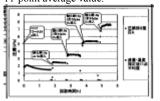


Fig. 3.3.6.1 Results II of pressure loss tests employing various colloidal particles (1/4)

/35

PL# Test conditions 3.20-4

Rock wool (g)

Preparation method Copper oxide (g) as Cu

	30
Dry pulver	rization
First	1
Second	1
Third	1
Fourth	2
Fifth	2
Total	7

59

2

1

1

1

1

6

Test method

Rock wool was introduced onto screen.

Pressure loss measuring element was built into the device. The copper oxide was dispersed for 5 minutes with ultrasound, and then introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 2(21.8)

2 (21.8)

Pure water system

3.20-5 Rock wool (g) Preparation method Dry pulverization Copper hydroxide (g) as First Cu (red text indicates Second introduction from tank) Third Fourth Fifth

> Test method Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. Copper hydroxide was introduced from the tank. Flow velocity cm/s (flow rate L/min) 2(21.8) 2 (21.8)

Total

Pure water system

3.20-6	Rock wool (g)		59
	Preparation method	Dry pulver	ization
	Aluminum hydroxide	First	1
	(g) as Al (red text	Second	0.5
	indicates introduction	Third	0.5
	from tank)	Fourth	0.5
		Total	2.5

Test method

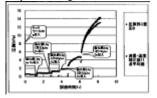
Rock wool was introduced onto screen. Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. The aluminum hydroxide was dispersed for 5 minutes by ultrasound, and then introduced through the debris inlet and from the tank

Flow velocity cm/s (flow rate L/min) 2(21.8) 2 (21.8)

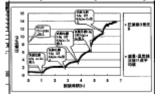
Pure water system

Complete test

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 1.0 g of copper oxide introduced as Cu (third capsule) 1.0 g of copper oxide introduced as Cu (total 2.0 g) (fourth capsule) 1.0 g of copper oxide introduced as Cu (total 3.0 g) (fifth capsule) 2.0 g of copper oxide introduced as Cu (total 5.0 g) (sixth capsule) 2.0 g of copper oxide introduced as Cu (total 7.0 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 2.0 g of copper hydroxide introduced as Cu (third capsule) 1.0 g of copper hydroxide introduced as Cu (total 3.0 g) (fourth capsule) 1.0 g of copper hydroxide introduced as Cu (total 4.0 g) (fifth capsule) 1.0 g of copper hydroxide introduced as Cu (total 5.0 g) (sixth capsule) 1.0 g of copper hydroxide introduced as Cu (total 6.0 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1 g of aluminum hydroxide introduced as Al (third capsule) 0.5 g of aluminum hydroxide introduced as Al (total 1.5 g) (fourth capsule) 0.5 g of aluminum hydroxide introduced as Al (total 2.0 g) (fifth capsule) 0.5 g of aluminum hydroxide introduced as Al (total 2.5 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

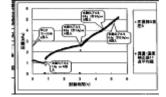


Fig. 3.3.6.1 Results II of pressure loss tests employing various colloidal particles (1/4) (cont'd)

PL# Test conditions

3.20-7 Rock woo Preparatio

Rock wool (g)		30
Preparation method	Dry pulver	ization
Aluminum hydroxide	First	0.5
(g) as Al (red text	Second	0.5
indicates introduction	Third	0.5
from tank)	Fourth	0.5
	Fifth	0.5
	Total	2.5

Test method

Rock wool was introduced onto screen.

Pressure loss measuring element was built into the device. The aluminum hydroxide was dispersed for 5 minutes by ultrasound, and then introduced through the debris inlet and from the tank

Flow velocity cm/s (flow rate L/min) 0.37(4) 2 (21.8)

Pure water system

Pure water system

Preparation method

Copper oxide (g) as Cu

Rock wool (g)

3

3.20-9

.20-8	Rock wool (g)		30
	Preparation method	Wet pulve	rization
	Iron hydroxide (g) as Fe	First	0.4
		Second	0.2

Total 0.6

Wet pulverization

First

Second

Third

30

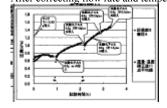
1

3

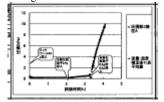
Test method Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. The iron hydroxide was dispersed for 5 minutes by ultrasound, and then introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)



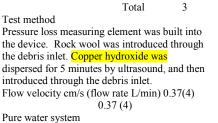
[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 0.5 g of aluminum hydroxide introduced as Al (third capsule) 0.5 g of aluminum hydroxide introduced as Al (total 1.0 g) (fourth capsule) 0.5 g of aluminum hydroxide introduced as Al (total 1.5 g) (fifth capsule) 0.5 g of aluminum hydroxide introduced as Al (total 2.0 g) (sixth capsule) 0.5 g of aluminum hydroxide introduced as Al (total 2.5 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 0.4 g of iron hydroxide introduced (third capsule) 0.2 g of iron hydroxide introduced (total 0.6) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 1.0 g of copper oxide introduced as Cu (third capsule) 1.0 g of copper oxide introduced as Cu (total 2.0) (fourth capsule) 1.0 g of copper oxide introduced as Cu (total 3.0 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



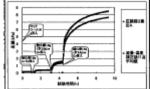


Fig. 3.3.6.1 Results II of pressure loss tests employing various colloidal particles (2/4)

				/38
<mark>?L#</mark> 3.20- 10	Test conditions Rock wool (g) Preparation method Copper hydroxide (g) as Cu (red text indicates introduction from tank)	Wet pulveri First Second Third	59 zation 1 0.5 0.5	Complete test [(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1.0 g of copper hydroxide introduced as Cu (third capsule) 0.5 g of copper hydroxide introduced as Cu (total 1.5) (fourth capsule) 0.5 g of copper hydroxide introduced as Cu (total 2.0 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and
	Test method Pressure loss measuring e the device. Rock wool wa the debris inlet The copp introduced from a tank. Flow velocity cm/s (flow 0.3'	as introduced t er hydroxide y	through <mark>was</mark>	temperature, 11-point average value.
3.20- 11	Pure water system Rock wool (g) Preparation method Aluminum hydroxide (g) as Al	Wet pulveri First Second Third	59 zation 0.4 0.4 0.4	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 0.4 g of aluminum hydroxide introduced as Al (third capsule) 0.4 g of aluminum hydroxide introduced as Al (total 0.8) (fourth capsule) 0.4 g of aluminum hydroxide introduced as Al (total 1.2 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.
		as introduced t inum hydroxi / ultrasound ar bris inlet.	through <mark>de was</mark> nd then	
3.20- 12	Pure water system Rock wool (g) Preparation method Aluminum hydroxide (g) as Al	Wet pulveri First Second Third	30 zation 0.4 0.4 0.4	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 0.4 g of aluminum hydroxide introduced as Al (third capsule) 0.4 g of aluminum hydroxide introduced as Al (total 0.8) (fourth capsule) 0.4 g of aluminum hydroxide introduced as Al (total 1.2 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After
		as introduced t inum hydroxi / ultrasound ar bris inlet.	through <mark>de was</mark> nd then	correcting flow rate and temperature, 11-point average value.
	Pure water system			

/38

Pure water system Fig. 3.3.6.2 Results II of pressure loss tests employing various colloidal particles (2/4) (cont'd)

53

PL#	Test conditions		50	Complete test
3.20-	Rock wool (g)	Densel	59	[(left) Pressure
13-1	Preparation method Calcium silicate (g)	Dry pulver First	3.1	of rock wool ir 0.2 g of iron hy
	Calcium sineate (g)	Second	3.1	calcium silicate
		Second	5.1	(total 6.6 g) (ri
	Iron hydroxide (g) as Fe	First	0.2	element 3 (righ
		Second	0.2	11-point average
		Total	6.6	TT point ut of u
	Test method			u
	Pressure loss measuring e	lement was b	uilt into	* 2
	the device. Rock wool wa	as introduced	through	1
	the debris inlet The calci	um silicate ar	nd iron	10 10 10 10 10 10 10 10 10 10 10 10 10 1
	hydroxide were simultane	ously introdu	ced	
	through the debris inlet.			· · · ·
	Flow velocity cm/s (flow)		.37(4)	
		7 (4)		
2.20	Pure water system		50	[(] () D
3.20- 13-2	Rock wool (g)	Wat mulwar	59	[(left) Pressure
13-2	Preparation method Calcium silicate (g)	Wet pulver First	1.55	of rock wool in 0.1 g of iron hy
	Calcium sineate (g)	Second	1.55	calcium silicate
		Third	1.55	(total 3.3 g) (fo
		Fourth	1.55	hydroxide as F
	Iron hydroxide (g) as Fe	First	0.1	calcium silicate
		Second	0.1	(total 6.6 g) (ri
		Third	0.1	element 3 (righ
		Fourth	0.1	11-point average
	Total	6.6		
	Test method			1 <u>55</u>
	Pressure loss measuring e			
	the device. Rock wool wa		U	1 4 100 100 - 100 100 100 100 100 100 100 1
	the debris inlet The calci			
	hydroxide were simultane	ously introdu	ced	
	through the debris inlet. Flow velocity cm/s (flow :	rata I (min) 0	27(4)	
	•	7 (4)	.37(4)	
	Pure water system	י (ד)		
3.20-	Rock wool (g)		59	[(left) Pressure
14	Preparation method	Wet pulver		of rock wool in
	Calcium silicate (g)	First	1.55	0.7 g of copper
		Second	1.55	calcium silicate
		Third	1.55	4.5 g) (fourth c
				oxide as Cu we
	Copper oxide (g) as Cu	First	0.7	differential B is
		Second	0.7	correcting flow
		Third	0.7	15
	T. (.)			10 10 10 10 10 10 10 10 10 10 10 10 10 1
	Total Tost method	6.75		2
	Test method	lamant was b	uilt into	
	Pressure loss measuring et the device. Rock wool wa			a 200 000 000
	the debris inlet The calci			
	copper oxide were simulta			- · · *
	through the debris inlet.			
	Flow velocity cm/s (flow)	rate I (min) 0	37(4)	

Flow velocity cm/s (flow rate L/min) 0.37(4)

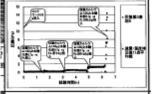
0.37(4)

Pure water system

(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g frock wool introduced (second capsule) 3.1 g of calcium silicate and .2 g of iron hydroxide as Fe were introduced (third capsule) 3.1 g of alcium silicate and 0.2 g of iron hydroxide as Fe were introduced total 6.6 g) (right top bullet) Pressure differential B in pressure loss lement 3 (right bot bullet) After correcting flow rate and temperature, 1-point average value.

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(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g frock wool introduced (second capsule) 1.55 g of calcium silicate and 1 g of iron hydroxide as Fe were introduced (third capsule) 1.55 g of alcium silicate and 0.1 g of iron hydroxide as Fe were introduced total 3.3 g) (fourth capsule) 1.55 g of calcium silicate and 0.1 g of iron ydroxide as Fe were introduced (total 4.95 g) (fifth capsule) 1.55 g of alcium silicate and 0.1 g of iron hydroxide as Fe were introduced total 6.6 g) (right top bullet) Pressure differential B in pressure loss lement 3 (right bot bullet) After correcting flow rate and temperature, 1-point average value.



(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g rock wool introduced (second capsule) 1.55 g of calcium silicate and 7 g of copper oxide as Cu were introduced (third capsule) 1.55 g of alcium silicate and 0.7 g of copper oxide as Cu were introduced (total .5 g) (fourth capsule) 1.55 g of calcium silicate and 0.7 g of copper xide as Cu were introduced (total 6.75 g) (right top bullet) Pressure fferential B in pressure loss element 3 (right bot bullet) After orrecting flow rate and temperature, 11-point average value.

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Fig. 3.3.6.3 Results II of pressure loss tests employing various colloidal particles (3/4)

PL# Test conditions

3.20-15

lock	wool	(g)
------	------	-----

Preparation method Calcium silicate (g)

	Second Third	1.55 1.55
Aluminum hydroxide (g) as Al	First Second Third	0.2 0.2 0.2
Total Test method	6.25	

Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet.. The calcium silicate and aluminum hydroxide were simultaneously introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

Pure water system

Rock wool (g)

3.20-16

Preparation method Calcium silicate (g)

30 (dry) + 10 (wet) Dry and wet pulverization 3.1 First Second 3.1 Third 3.1 Fourth 3.1 Fifth 3.1 Total 15.5

Method of packing insulating material The dry rock wool was introduced onto the screen. Pressure loss measuring element was built into the device, and the wet rock wool was introduced through the debris inlet. The calcium silicate was introduced through the debris inlet.

Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

	Pure water system
20-	Rock wool (g)

	i ale water bystem		
3.20-	Rock wool (g)	30 (dry)	+ 5 (wet)
17-	Preparation method	Dry and w	ret
repeat		pulverizat	ion
	Calcium silicate (g)	First	6.2
		Second	6.2
		Third	6.2
		Fourth	3.1
		Total	21.7

Method of packing insulating material Dry rock wool was introduced onto the screen. A pressure loss measuring element was built into the device. Wet rock wool was introduced through the debris inlet. The calcium silicate was introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37(4)

Pure water system

Complete test

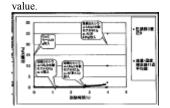
30

1.55

Wet pulverization

First

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 1.55 g of calcium silicate and 0.2 g of aluminum hydroxide as Al were introduced (third capsule) 1.55 g of calcium silicate and 0.2 g of aluminum hydroxide as Al were introduced (total 3.7 g) (fourth capsule) 1.55 g of calcium silicate and 0.2 g of aluminum hydroxide as Al were introduced (total 6.25 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 10 g of wet rock wool was introduced (second capsule) 3.1 g of calcium silicate were introduced (third capsule) 3.1 g of calcium silicate was introduced (total 6.2 g) (fourth capsule) 3.1 g of calcium silicate was introduced (total 9.3 g) (fifth capsule) 3.1 g of calcium silicate was introduced (total 12.4 g) (sixth capsule) 3.1 g of calcium silicate was introduced (total 15.5 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

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		·28-264
	NUMBER OF	<u>.</u>

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of dry rock wool was introduced (second capsule) 5 g of wet rock wool was introduced. (third capsule) 6.2 g of calcium silicate was introduced (fourth capsule) 6.2 g of calcium silicate was introduced (total 12.4 g) (fifth capsule) 6.2 g of calcium silicate was introduced (total 18.6 g) (sixth capsule) 3.1 g of calcium silicate was introduced (total 21.7 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value

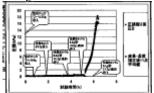


Fig. 3.3.6.3 Results II of pressure loss tests employing various colloidal particles (3/4) (cont'd)

18 Iron nitrate (g) as Fe

Test method

Pure water system

Preparation method

Copper nitrate (g) as Fe

Rock wool (g)

[sic: as Cu]

Complete test

59

5

5

59

5

Dry pulverization

Dry pulverization

First

First

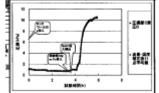
Total

The rock wool was introduced onto the screen. The pressure loss measuring element was built into the device and an aqueous solution of iron

nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 2 (21.8) [(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 5.0 g of iron nitrate as Fe was introduced. (third capsule) Beginning of introduction of NaOH (fourth capsule) Flow velocity reduced from 2 to 0.38 cm (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

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	-	
	2	· ##:##

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool was introduced (second capsule) 7.0 g of copper nitrate as Cu was introduced. (third capsule) Beginning of introduction of NaOH (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



copper nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 2 (21.8) Pure water system Rock wool (g) 59

The pressure loss measuring element was built into the device and an aqueous solution of

Method of packing insulating material The rock wool was introduced onto the screen.

Dry pulverization 20 Preparation method Aluminum nitrate (g) as First A1

Test method

The rock wool was introduced onto the screen. The pressure loss measuring element was built into the device and an aqueous solution of aluminum nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 2 (21.8) Pure water system

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 5.0 g of aluminum nitrate as Al was introduced. (third capsule) Beginning of introduction of NaOH (fourth capsule) Flow velocity reduced from 2 to 0.38 cm/s (fifth capsule) Flow rate increased from 0.38 to 2 cm/s (sixth capsule) Start of reintroduction of NaOH (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

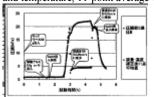


Fig. 3.3.6.4 Results II of pressure loss tests employing various colloidal particles (4/4)

3.20-19

3.20-

PL# Test conditions

3.20-Rock wool (g) 21 Preparation method Iron nitrate (g) as Fe

Test method

Pure water system

Preparation method

Copper nitrate (g) as Fe

Rock wool (g)

[sic: as Cu]

59 Wet pulverization

59

3

Wet pulverization

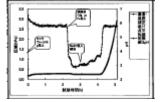
First

First

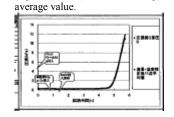
The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. An aqueous solution of iron nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 0.37 (4)

Complete test

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1.0 g of iron nitrate as Fe was introduced. (third capsule) Beginning of introduction of NaOH (right top dot) After correcting flow rate and temperature, 11-point average value (right bottom dot) pH of pressure loss element 3



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 3.0 g of copper nitrate as Cu was introduced. (third capsule) Beginning of introduction of NaOH (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1.5 g of aluminum nitrate as Al was introduced. (third capsule) Beginning of introduction of NaOH (fourth capsule) Start of forced cooling (fifth capsule) Start of heating (right top dot) After correcting flow rate and temperature, 11-point average value (right bottom dot) pH of pressure loss element

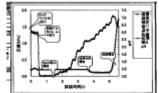


Fig. 3.3.6.4 Results II of pressure loss tests employing various colloidal particles (4/4) (cont'd)

57

3

1.5

3.20-

22

Method of packing insulating material The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. An aqueous solution of copper nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 0.37 (4) Pure water system

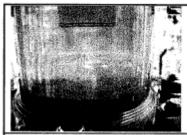
3.20-23

Rock wool (g) 59 Preparation method Wet pulverization Aluminum nitrate (g) as First 1.5 Al

Total

Test method The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. An aqueous solution of aluminum nitrate was introduced into a tank. Subsequently, sodium hydroxide was sequentially introduced from a tank. Flow velocity cm/s (flow rate L/min) 0.37 (4) Pure water system

During introduction of copper hydroxide as Cu from tank.



copper hydroxide from tank. 1337 二二

During introduction of 0.5 g (total 1.5 g) of

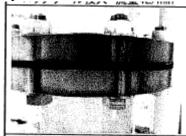
Appearance of rock wool Same as left, enlarged Upstream side Lateral surface view 圧損 式發脫親状況(DL#3.20·10)

Fig. 3.3.6.5: Overview of pressure lost test using copper hydroxide (PL#3.20-10)

Rock wool introduction, flow rate 4 L/min



During introduction of 0.4 g of aluminum hydroxide as Al



During introduction of 0.4 g (total 0.8 g) of aluminum hydroxide as Al



Fig. 3.3.6.6: Overview of pressure lost test using aluminum hydroxide (PL#3.20-11)

During introduction of 0.4 g of aluminum hydroxide as Al

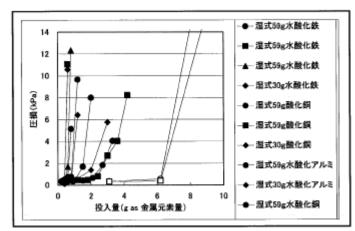


During introduction of 0.4 g of aluminum hydroxide as Al



During introduction of 0.4 g (total 1.2 g) of aluminum hydroxide as Al





[(left of graph) Pressure loss (kPa) (below graph) Quantity introduced (given in g as quantity of metal element)

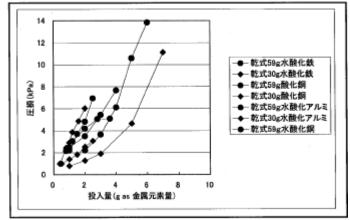
(circle) wet 59 g, iron hydroxide (square) wet 59 g, iron hydroxide (triangle) wet 59 g, iron hydroxide (diamond) wet 30 g, iron hydroxide (circle) wet 59 g, copper oxide (square) wet 59 g, copper oxide (diamond) wet 30 g, copper oxide (circle) wet 59 g, aluminum hydroxide (diamond) wet 30 g, aluminum hydroxide

(circle) wet 59 g, copper hydroxide

(hollow circle) wet 59g of calcium silicate

(hollow square) wet 59g of calcium silicate]

Fig. 3.3.6.7 Combined results II of pressure loss tests employing various colloidal particles (wet rock wool)



[(left of graph) Pressure loss (kPa) (below graph) Quantity introduced (given in g as quantity of metal element)

(circle) dry 59 g, iron hydroxide

(diamond) dry 30 g, iron hydroxide

(circle) dry 59 g, copper oxide

(diamond) dry 30 g, copper oxide (circle) dry 59 g, aluminum hydroxide (diamond) dry 30 g, aluminum hydroxide (circle) dry 59 g, copper hydroxide] Fig. 3.3.6.8 Combined results II of pressure loss tests employing various colloidal particles (dry rock wool)

PL# Test co	onditions
-------------	-----------

Test method

3.21-1 Rock wool (g)

Preparation method
Iron hydroxide (g) as Fe

	59
Dry pulver	ization
First	1
Second	1
Third	1
Fourth	1

4

2

Total	

10

Dry rock wool was introduced into screen. The pressure loss measuring element was built into the device. Iron hydroxide was introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system

3.21-2 Rock wool (g) 59 Preparation method Dry pulverization Copper hydroxide (g) as First 1 Cu Second 0.5 Third 0.5

Test method

2 21 2

Dry rock wool was introduced into screen. The pressure loss measuring element was built into the device. Copper hydroxide was introduced through the debris inlet.

Total

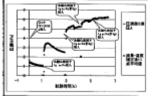
Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system

3.21-3	KOCK WOOI (g)	59						
	Preparation method	Dry pulverization						
	Calcium silicate (g)	First	3.1					
		Second	3.1					
		Third	3.1					
		Fourth	3.1					
		Total	12.4					
	Test method							
	Dry rock wool was introduced into the screen.							
	The pressure loss measuring element was built							

into the device. Calcium silicate was introduced through the debris inlet. Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system

Complete test

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1.0 g of iron hydroxide as Fe was introduced. (third capsule) 1.0 g of iron hydroxide as Fe was introduced (total 2.0 g) (fourth capsule) 1.0 g of iron hydroxide as Fe was introduced (total 3.0 g) (fifth capsule) 1.0 g of iron hydroxide particles as Fe was introduced (total 4.0 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1.0 g of copper hydroxide as Cu was introduced. (third capsule) 0.5 g of copper hydroxide as Cu was introduced (total 1.5 g) (fourth capsule) 0.5 g of copper hydroxide as Cu was introduced (total 2.0 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

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[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 3.1 g of calcium silicate was introduced. (third capsule) 3.1 g of calcium silicate was introduced (total 6.2 g) (fourth capsule) 3.1 g of calcium silicate was introduced (total 9.3 g) (fifth capsule) 3.1 g of calcium silicate was introduced (total 12.4 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

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a *	

Fig. 3.3.7.1 Results of test of effects of water quality in boric acid/sodium hydroxide system (1/3)

- PL# Test conditions
- 3.21-Rock wool (g)
- 4-1 Preparation method Wet pulverization Iron hydroxide (g) as Fe First

Total 0.4

Test method The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Iron hydroxide was introduced through the debris inlet.

Flow velocity cm/s (flow rate L/min) 0.37 (4) Boric acid/NaOH system 59

- 3.21-Rock wool (g) 4-2
 - Preparation method Iron hydroxide (g) as Fe

First	0.2
Second	0.2
Third	0.2
Fourth	0.2
Total	0.8

Wet pulverization

Test method

The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Copper [sic: iron] hydroxide particles were introduced from a tank. Flow velocity cm/s (flow rate L/min) 0.37 (4)

Boric acid/NaOH system 59

3.21-Rock wool (g)

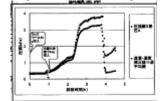
Preparation method 4-3 Wet pulverization Iron hydroxide (g) as Fe (red text indicates introduction from tank).

Complete test

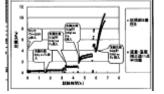
59

0.4

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 0.4 g of iron hydroxide particles were introduced. (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 0.2 g of iron hydroxide as Fe was introduced. (third capsule) 0.2 g of iron hydroxide as Fe was introduced. (total 0.4 g) (fourth capsule) 0.2 g of iron hydroxide as Fe was introduced (total 0.6 g) (fifth capsule) 0.2 g of iron hydroxide as Fe was introduced (total 0.8 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



When the test passage of water through the pressure loss detecting element was stopped during the introduction of iron hydroxide, the rock wool collapsed and the test failed.

Test method The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Iron hydroxide particles were introduced from the tank Flow velocity cm/s (flow rate L/min) 0.37 (4) Boric acid/NaOH system

Fig. 3.3.7.2 Results of test of effects of water quality in boric acid/sodium hydroxide system (2/3)

PL# Test conditions

3.21- Rock wool (g)

4-4

Preparation method Iron hydroxide (g) as Fe (red text indicates introduction from tank).

> Method of packing the insulating material The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Iron hydroxide was introduced from the tank. Flow velocity cm/s (flow rate L/min) 0.39 (4) Boric acid/NaOH system

3.21-5 Rock wool (g) 59 Preparation method Copper oxide (g) as Cu (red text indicates introduction from tank). Third 0.5 Fourth 0.5

Total 2.5

Method of packing the insulating material The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Copper oxide was introduced from a tank. Flow velocity cm/s (flow rate L/min) 0.39 (4) Boric acid/NaOH system

3.21-6	Rock wool (g)	30 (dry) + 5 (wet)		
	Preparation method	Dry, wet		
		pulverizati	on	
	Copper hydroxide (g) as	First	1	
	Cu	Second	0.5	
		Third	0.5	

Total 2.0

Method of packing the insulating material The pressure loss measuring element was built into the device. Dry rock wool was introduced through the debris inlet, after which wet rock wool was introduced through the debris inlet. Copper hydroxide was introduced from the tank.

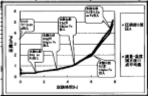
Flow velocity cm/s (flow rate L/min) 0.39 (4) Boric acid/NaOH system

Complete test

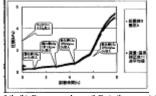
59

Wet pulverization

[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 0.4 g of iron hydroxide as Fe was introduced. (third capsule) 0.2 g of iron hydroxide as Fe was introduced. (total 0.6 g) (fourth capsule) 0.2 g of iron hydroxide as Fe was introduced (total 0.8 g) (fifth capsule) 0.2 g of iron hydroxide as Fe was introduced (total 1.0 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1.0 g of copper oxide as Cu was introduced. (third capsule) 0.5 g of copper oxide as Cu was introduced. (total 1.5 g) (fourth capsule) 0.5 g of copper oxide as Cu was introduced (total 2.0 g) (fifth capsule) 0.5 g of copper oxide as Cu was introduced (total 2.5 g) (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.



[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g [sic] of rock wool was introduced (second capsule) 1.0 g of copper hydroxide as Cu was introduced. (third capsule) 0.5 g of copper hydroxide as Cu was introduced. (total 1.5 g) (fourth capsule) 0.5 g of copper hydroxide as Cu was introduced (total 2.0 g) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.

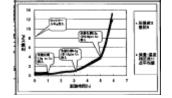


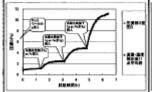
Fig. 3.3.7.2 Results of test of effects of water quality in boric acid/sodium hydroxide system (2/3) (cont'd)

				/49
PL# 3.21-7	Test conditions Rock wool (g) Preparation method Aluminum hydroxide (g) as Al	Wet pulveri First	59 zation 0.4	Complete test [(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 0.4 g of aluminum hydroxide as Al was introduced. (right top bullet) Pressure differential A in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.
	Test method The pressure loss measuri into the device and the roc introduced through the del hydroxide particles were i debris inlet. Flow velocity cm/s (flow Boric acid/NaOH system	ek wool was bris inlet. Alur ntroduced thro	ninum ough the	
3.21- 8-1	Rock wool (g) Preparation method Calcium silicate (g)	Wet pulveri: First	59 zation 0.2	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 0.2 g of calcium silicate was introduced. (third capsule) Introduction of NaOH (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.
3.21- 8-2	Test method The pressure loss measuri into the device and the roo introduced through the de silicate was introduced the When the pressure differe of NaOH was introduced. Flow velocity cm/s (flow i Boric acid/NaOH system Rock wool (g) Preparation method Calcium silicate (g)	ek wool was bris inlet. Calc rough the debr ntial increased	ium is inlet. , 500 g 37 (4) 59	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 6.2 g of calcium silicate was introduced. (third capsule) 3.1 g of calcium silicate was introduced (total 9.3) (right top bullet) Pressure differential B in pressure loss element 3 (right bot bullet) After correcting flow rate and temperature,
	Test method The pressure loss measuri into the device and the roc introduced through the del silicate was introduced thr	ck wool was bris inlet. Calc	ium	11-point average value.

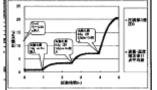
Fig. 3.3.7.3 Results of test of effects of water quality in boric acid/sodium hydroxide system (3/3)

PL# 3.22-1	Test conditions Rock wool (g) Preparation method Iron hydroxide (g) as Fe (red text indicates introduction from a tank)	Dry pulveriz First Second Third	59 zation 1 1 1	Complete test [(left) Pressur of rock wool v particles as Fé particles as Fé hydroxide par Pressure diffe After correctii
3.22-2	Test method The pressure loss measuri into the device and the roc introduced through the del hydroxide was introduced Flow velocity cm/s (flow i Hydrazine/boric acid/NaC Rock wool (g) Preparation method Copper hydroxide (g) as Cu (red text indicates introduction from a tank)	k wool was bris inlet. Iron from a tank. rate L/min) 2	(21.8) 59	[(left) Pressur of rock wool v hydroxide as copper hydrox Pressure diffe
3.22-3	Test method The pressure loss measuring into the device and the roc introduced through the del hydroxide was introduced inlet. Flow velocity cm/s (flow the Hydrazine/boric acid/NaC Rock wool (g) Preparation method Aluminum hydroxide (g) as Al	k wool was bris inlet. Cop through the d rate L/min) 2	per ebris (21.8) 59	After correctii
3.22-4	Test method The pressure loss measuri into the device and the roc introduced through the del hydroxide was introduced inlet. Flow velocity cm/s (flow n Hydrazine/boric acid/NaC Rock wool (g) Preparation method Calcium silicate (g) Test method The pressure loss measuri into the device and the roc introduced through the del silicate was introduced thr	k wool was bris inlet. Alur through the de- rate L/min) 2 H system Dry pulveriz First Second Third Total ng element was k wool was bris inlet. Calc rough the debr	ninum ebris (21.8) 59 zation 6.2 3.1 3.1 12.4 as built ium is inlet.	[(left) Pressur of rock wool v was introduced (to introduced (to pressure loss temperature, i
	Flow velocity cm/s (flow r Hydrazine/boric acid/NaO	1		

re loss (kPa) (bottom) Test period (h) (first capsule) 59 g was introduced (second capsule) 1 g of iron hydroxide e were introduced. (third capsule) 1 g of iron hydroxide e were introduced (total 2 g) (fourth capsule (1 g of iron rticles as Fe were introduced (total 3 g) (right top bullet) erential B in pressure loss element 3 (right bot bullet) ing flow rate and temperature, 11-point average value.



re loss (kPa) (bottom) Test period (h) (first capsule) 59 g was introduced (second capsule) 1.0 g of copper Cu was introduced. (third capsule) 0.5 g of copper Cu was introduced (total 1.5 g) (fourth capsule (0.5 g of xide as Cu was introduced (total 2 g) (right top bullet) erential B in pressure loss element 3 (right bot bullet) ing flow rate and temperature, 11-point average value.



. Photograph taken. Operation was halted when the increased to about 18 kPa with the introduction of 2 g of droxide as Al.

re loss (kPa) (bottom) Test period (h) (first capsule) 59 g was introduced (second capsule) 6.2 g of calcium silicate ed. (third capsule) 3.1 g of calcium silicate was otal 9.3 g) (fourth capsule (3.1 g of calcium silicate was otal 12.4 g) (right top bullet) Pressure differential B in element 3 (right bot bullet) After correcting flow rate and 11-point average value.

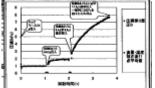


Fig. 3.3.7.4 Results of water quality effect test in hydrazine/boric acid/sodium hydroxide system (1/2)