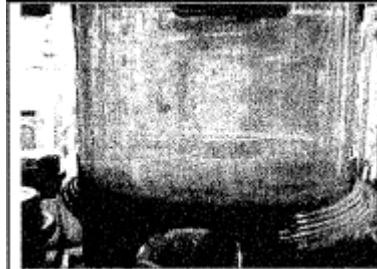


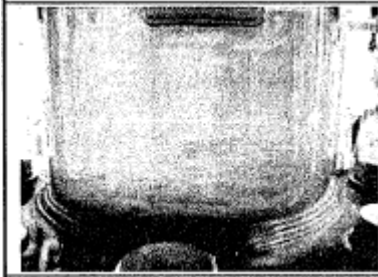
Pulverized rock wool powder



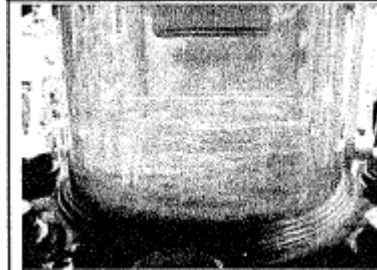
During introduction of 3.3 g of pulverized rock wool powder



After introduction of pulverized rock wool powder



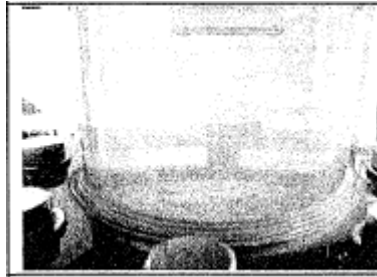
After introduction of 3.3 g of pulverized rock wool powder (total 6.7 g)



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



After introduction of 3.1 g of calcium silicate



During halt in operation

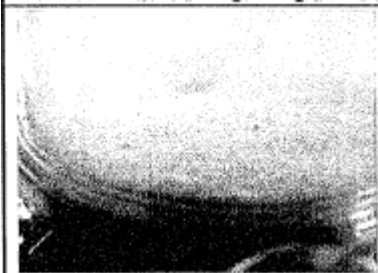
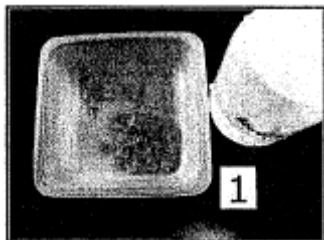
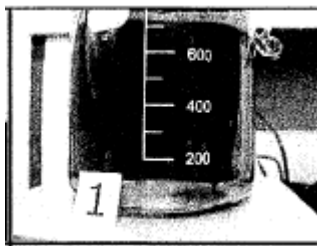


Fig. 3.3.3.2 Test of effect of minute rock wool (PL#3.17-1)

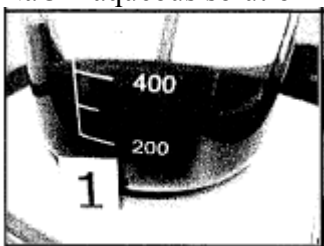
Iron nitrate reagent



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



While standing following the addition of NaOH aqueous solution



Same as left.

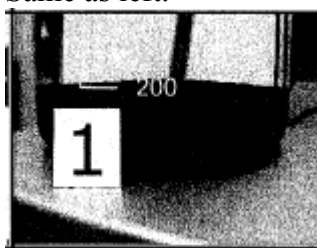
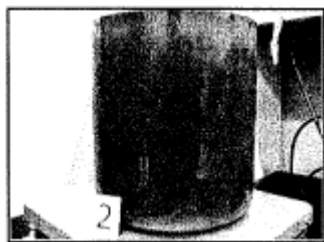
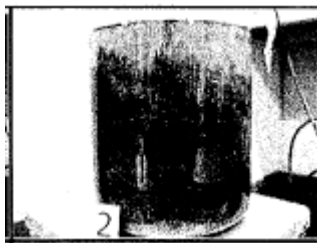


Fig. 3.3.4.1 Preparation of iron hydroxide

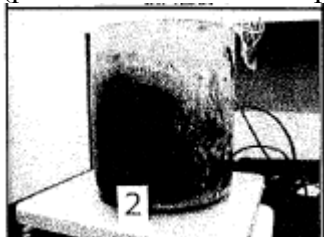
Immediately following introduction of NaOH into copper nitrate aqueous solution (Cu 1g/ pure water 1L) (1)



Immediately following introduction of NaOH (2)



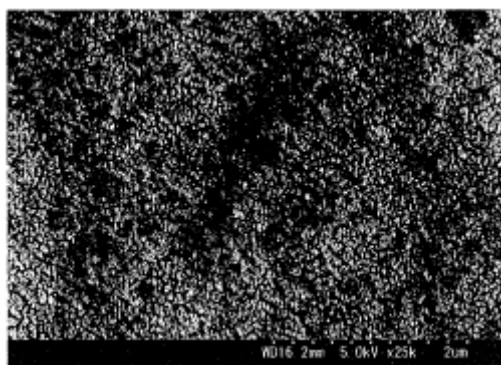
3 min after introduction of NaOH (production of colorless precipitate)



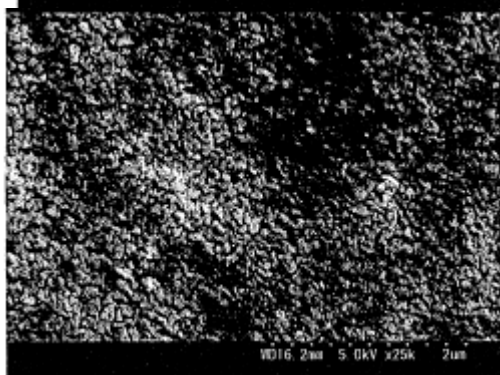
Standing after having been stirred with spoon.



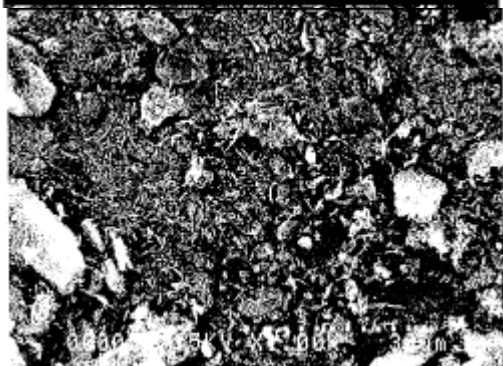
Fig. 3.3.4.2 Preparation of copper oxide



Iron hydroxide colloid



Copper oxide colloid



Calcium silicate particles

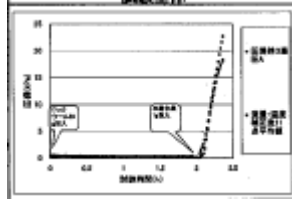
Fig. 3.3.4.3 Enlarged views of colloids and particles prepared (Photos of iron hydroxide and copper oxide were taken at a magnification of about 15 times that of the photo of calcium silicate)

PL#	Test conditions	
3.18-1	Rock wool (g)	59
	Preparation method	Wet pulverization
	Iron hydroxide (g) as Fe	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

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.

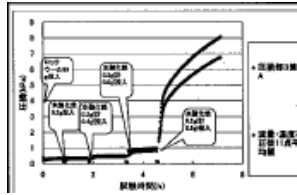


3.18-2	Rock wool (g)	59
	Preparation method	Wet pulverization
	Iron hydroxide (g) as Fe	First 0.2
		Second 0.2
		Third 0.2
		Fourth 0.2
		Total 0.8

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

[(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.



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

[(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.

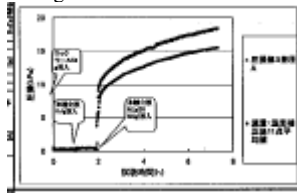


Fig. 3.3.4.4 Results I of pressure loss test employing various colloidal particles

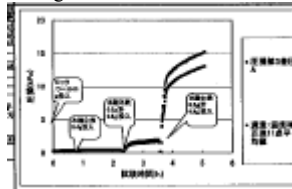
3.18-4	Rock wool (g)		59
	Preparation method	Wet pulverization	
	Iron hydroxide particles (g) as Fe	First	0.4
		Second	0.2
		Third	0.2
		Total	0.8

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
Duplicate test of PL#3.18-2

[(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.



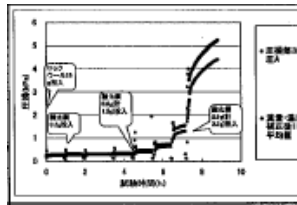
3.18-5	Rock wool (g)		59
	Preparation method	Wet pulverization	
	Copper oxide particles (g) as Cu	First	0.3
		Second	0.3
		Third	0.3
		Fourth	0.6
		Fifth	0.6
		Sixth	0.6
		Seventh	0.6
		Total	3.5

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

[(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 value.



3.18-6	Rock wool (g)		59
	Preparation method	Wet pulverization	
	Copper oxide particles (g) as Cu	First	1.2
		Second	0.6
		Third	0.6
		Fourth	0.6
		Fifth	0.6
		Sixth	0.6
		Total	4.2

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
Repeat test of PL#3.18-6

[(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.

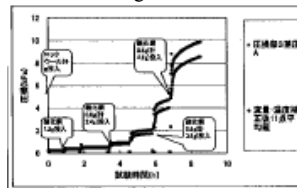
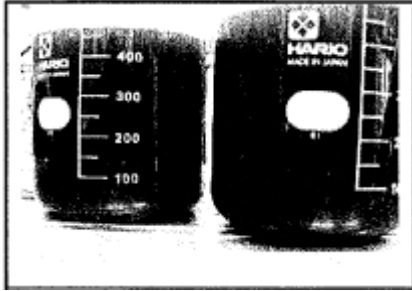


Fig. 3.3.4.4 Results I of pressure loss test employing various colloidal particles (cont'd)

Iron hydroxide



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



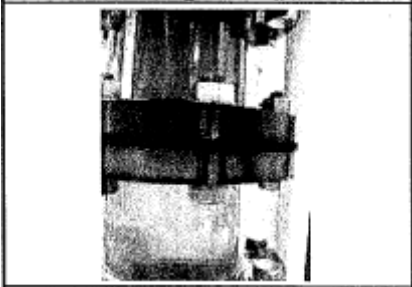
When 1 g of iron hydroxide as Fe introduced



Same as left



The screen before and after introduction of iron hydroxide



20 min after introduction of iron hydroxide



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

Rock wool introduction, flow rate 4 L/min



During introduction of 1.2 g of copper oxide as Cu



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



1 hour after introduction of 1.8 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 3.0 g of copper oxide as Cu



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



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



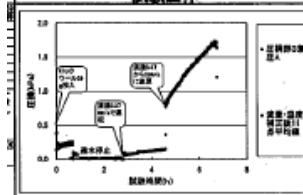
Fig. 3.3.4.6 Appearance of pressure loss test I employing various colloidal particles (PL#3.18-6)

PL# 3.19-1
 Test conditions
 Rock wool (g) 59
 Preparation method Wet pulverization
 ICAN#5 test water 300 L

Complete test
 [(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.

Test method
 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.

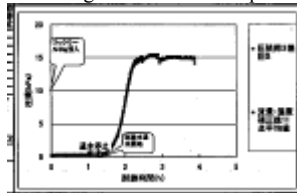


3.19-2-1 Rock wool (g) 30
 Preparation method Wet pulverization
 ICAN#5 test water First 700 L

[(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.

Test method
 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.

Flow velocity cm/s (flow rate L/min) 0.56(6.1)
 [illegible]
 ICAN#6 test water was employed.

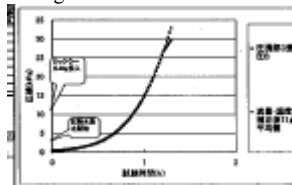


3.19-2-2 Rock wool (g) 30
 Preparation method Wet pulverization
 ICAN#6 test water First 700 L

[(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.

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

[(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.

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.

value.

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

ICAN#7 test water was employed

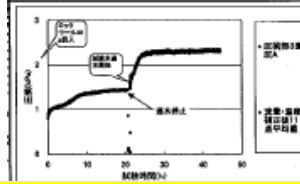
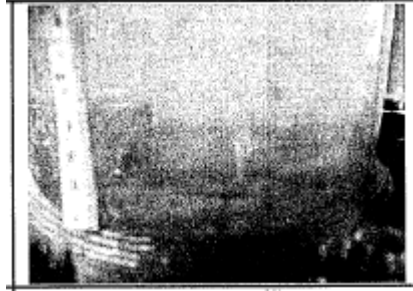


Fig. 3.3.5.1 Results of pressure loss tests employing ICAN test water

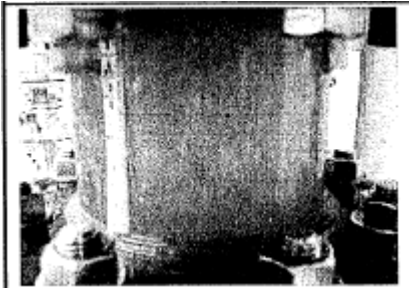
ICAN#5 test water



Rock wool introduction



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



Flow rate 4 L/min, 2 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)

PL#	Test conditions		Complete test
3.20-1	Rock wool (g)	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 3.6 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.
	Preparation method	Dry pulverization	
	Iron hydroxide (g) as Fe (red text indicates introduction from tank)	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	
	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)		
	Pure water system		
3.20-2	Rock wool (g)	59	[(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 (third capsule) 0.4 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 of 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.
	Preparation method	Dry pulverization	
	Iron hydroxide (g) as Fe (red text indicates introduction from tank)	First 0.8 Second 0.4 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)		
	Pure water system		
3.20-3	Rock wool (g)	59	[(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.
	Preparation method	Dry pulverization	
	Copper oxide (g) as Cu	First 1 Second 1 Third 1 Fourth 1 Total 4	
	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)		
	Pure water system		

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

PL#	Test conditions	Complete test												
3.20-4	<p>Rock wool (g) 30</p> <p>Preparation method Dry pulverization</p> <p>Copper oxide (g) as Cu</p> <table border="1"> <tr><td>First</td><td>1</td></tr> <tr><td>Second</td><td>1</td></tr> <tr><td>Third</td><td>1</td></tr> <tr><td>Fourth</td><td>2</td></tr> <tr><td>Fifth</td><td>2</td></tr> <tr><td>Total</td><td>7</td></tr> </table> <p>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)</p> <p>Pure water system</p>	First	1	Second	1	Third	1	Fourth	2	Fifth	2	Total	7	<p>[(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.</p>
First	1													
Second	1													
Third	1													
Fourth	2													
Fifth	2													
Total	7													
3.20-5	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Copper hydroxide (g) as Cu (red text indicates introduction from tank)</p> <table border="1"> <tr><td>First</td><td>2</td></tr> <tr><td>Second</td><td>1</td></tr> <tr><td>Third</td><td>1</td></tr> <tr><td>Fourth</td><td>1</td></tr> <tr><td>Fifth</td><td>1</td></tr> <tr><td>Total</td><td>6</td></tr> </table> <p>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)</p> <p>Pure water system</p>	First	2	Second	1	Third	1	Fourth	1	Fifth	1	Total	6	<p>[(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.</p>
First	2													
Second	1													
Third	1													
Fourth	1													
Fifth	1													
Total	6													
3.20-6	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Aluminum hydroxide (g) as Al (red text indicates introduction from tank)</p> <table border="1"> <tr><td>First</td><td>1</td></tr> <tr><td>Second</td><td>0.5</td></tr> <tr><td>Third</td><td>0.5</td></tr> <tr><td>Fourth</td><td>0.5</td></tr> <tr><td>Total</td><td>2.5</td></tr> </table> <p>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)</p> <p>Pure water system</p>	First	1	Second	0.5	Third	0.5	Fourth	0.5	Total	2.5	<p>[(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.</p>		
First	1													
Second	0.5													
Third	0.5													
Fourth	0.5													
Total	2.5													

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

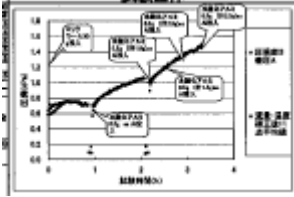
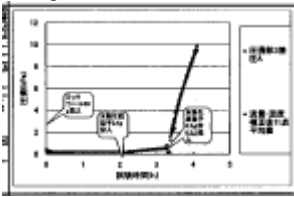
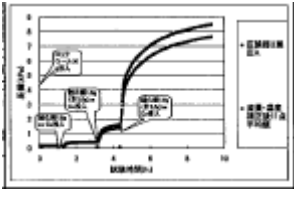
PL#	Test conditions		Complete test
3.20-7	Rock wool (g)	30	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 30 g of rock wool introduced (second capsule) 0.5 g of aluminum hydroxide introduced as Al (third capsule) 0.5 g of aluminum hydroxide introduced as Al (total 1.0 g) (fourth 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.
	Preparation method	Dry pulverization	
	Aluminum hydroxide (g) as Al (red text indicates introduction from tank)	First 0.5 Second 0.5 Third 0.5 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		
3.20-8	Rock wool (g)	30	[(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.
	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 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)	
	Pure water system		
3.20-9	Rock wool (g)	30	[(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.
	Preparation method	Wet pulverization	
	Copper oxide (g) as Cu	First 1 Second 1 Third 1 Total 3	
	Test method		
	Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. Copper 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)	
	Pure water system		

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

PL#	Test conditions	Complete test
3.20-10	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Copper hydroxide (g) as First 1</p> <p>Cu (red text indicates Second 0.5</p> <p>introduction from tank) Third 0.5</p> <p>Total 2</p> <p>Test method</p> <p>Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet.. The copper hydroxide was introduced from a tank.</p> <p>Flow velocity cm/s (flow rate L/min) 0.37(4)</p> <p>Pure water system</p>	<p>[(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 temperature, 11-point average value.</p>
3.20-11	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Aluminum hydroxide First 0.4</p> <p>(g) as Al Second 0.4</p> <p>Third 0.4</p> <p>Total 1.2</p> <p>Test method</p> <p>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.</p> <p>Flow velocity cm/s (flow rate L/min) 0.37(4)</p> <p>Pure water system</p>	<p>[(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.</p>
3.20-12	<p>Rock wool (g) 30</p> <p>Preparation method Wet pulverization</p> <p>Aluminum hydroxide First 0.4</p> <p>(g) as Al Second 0.4</p> <p>Third 0.4</p> <p>Total 1.2</p> <p>Test method</p> <p>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.</p> <p>Flow velocity cm/s (flow rate L/min) 0.37(4)</p> <p>Pure water system</p>	<p>[(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 correcting flow rate and temperature, 11-point average value.</p>

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

PL#	Test conditions		Complete test
3.20-	Rock wool (g)	59	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 3.1 g of calcium silicate and 0.2 g of iron hydroxide as Fe were introduced (third capsule) 3.1 g of calcium 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 element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.
13-1	Preparation method	Dry pulverization	
	Calcium silicate (g)	First 3.1 Second 3.1	
	Iron hydroxide (g) as Fe	First 0.2 Second 0.2 Total 0.6	
	Test method		
	Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. The calcium silicate and iron 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		
3.20-	Rock wool (g)	59	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1.55 g of calcium silicate and 0.1 g of iron hydroxide as Fe were introduced (third capsule) 1.55 g of calcium 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 hydroxide as Fe were introduced (total 4.95 g) (fifth capsule) 1.55 g of calcium 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 element 3 (right bot bullet) After correcting flow rate and temperature, 11-point average value.
13-2	Preparation method	Wet pulverization	
	Calcium silicate (g)	First 1.55 Second 1.55 Third 1.55 Fourth 1.55	
	Iron hydroxide (g) as Fe	First 0.1 Second 0.1 Third 0.1 Fourth 0.1	
	Total	6.6	
	Test method		
	Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. The calcium silicate and iron 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		
3.20-	Rock wool (g)	59	[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool introduced (second capsule) 1.55 g of calcium silicate and 0.7 g of copper oxide as Cu were introduced (third capsule) 1.55 g of calcium silicate and 0.7 g of copper oxide as Cu were introduced (total 4.5 g) (fourth capsule) 1.55 g of calcium silicate and 0.7 g of copper oxide as Cu were introduced (total 6.75 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.
14	Preparation method	Wet pulverization	
	Calcium silicate (g)	First 1.55 Second 1.55 Third 1.55	
	Copper oxide (g) as Cu	First 0.7 Second 0.7 Third 0.7	
	Total	6.75	
	Test method		
	Pressure loss measuring element was built into the device. Rock wool was introduced through the debris inlet. The calcium silicate and copper oxide were simultaneously introduced through the debris inlet.		
	Flow velocity cm/s (flow rate L/min) 0.37(4) 0.37 (4)		
	Pure water system		

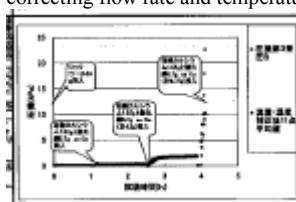
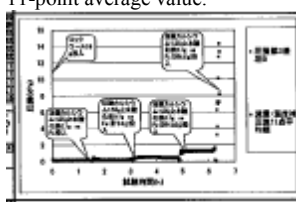
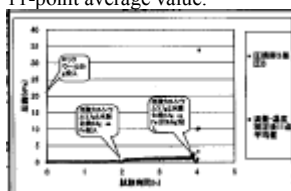
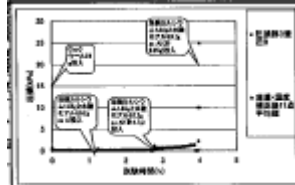


Fig. 3.3.6.3 Results II of pressure loss tests employing various colloidal particles (3/4)

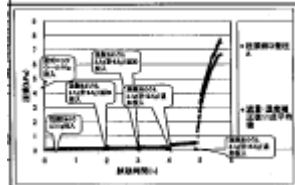
PL#	Test conditions	
3.20-15	Rock wool (g)	30
	Preparation method	Wet pulverization
	Calcium silicate (g)	First 1.55 Second 1.55 Third 1.55
	Aluminum hydroxide (g) as Al	First 0.2 Second 0.2 Third 0.2
	Total	6.25
	Test method	
	Pressure loss measuring element was built into the device. Rock wool was 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)
	Pure water system	

Complete test
 [(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 value.



3.20-16	Rock wool (g)	30 (dry) + 10 (wet)
	Preparation method	Dry and wet pulverization
	Calcium silicate (g)	First 3.1 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)
	Pure water system	

[(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.



3.20-17-repeat	Rock wool (g)	30 (dry) + 5 (wet)
	Preparation method	Dry and wet pulverization
	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)
	Pure water system	

[(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.

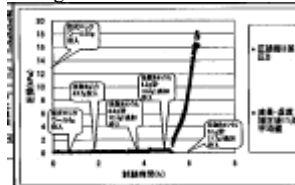


Fig. 3.3.6.3 Results II of pressure loss tests employing various colloidal particles (3/4) (cont'd)

PL#	Test conditions		Complete test
3.20-18	Rock wool (g)	59	[(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.
	Preparation method	Dry pulverization	
	Iron nitrate (g) as Fe	First 5	
		Total 5	
	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 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) Pure water system		
3.20-19	Rock wool (g)	59	[(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.
	Preparation method	Dry pulverization	
	Copper nitrate (g) as Fe	First 7	
	[sic: as Cu]		
	Method of packing insulating material		
	The rock wool was introduced onto the screen. The pressure loss measuring element was built into the device and 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) 2 (21.8) Pure water system		
3.20-20	Rock wool (g)	59	[(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.
	Preparation method	Dry pulverization	
	Aluminum nitrate (g) as Al	First 5	
	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		

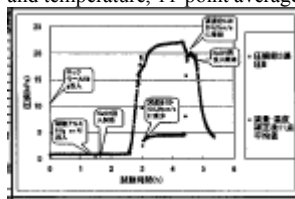
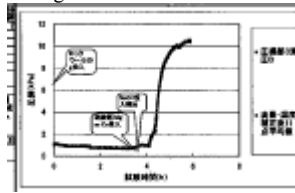
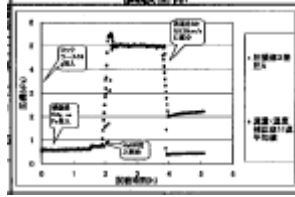


Fig. 3.3.6.4 Results II of pressure loss tests employing various colloidal particles (4/4)

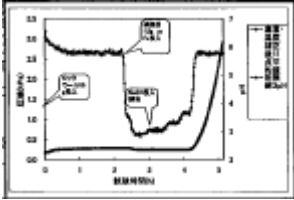
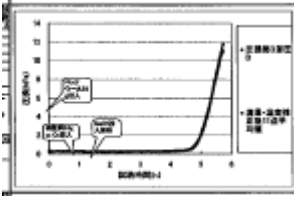
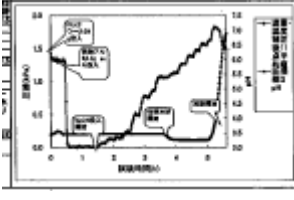
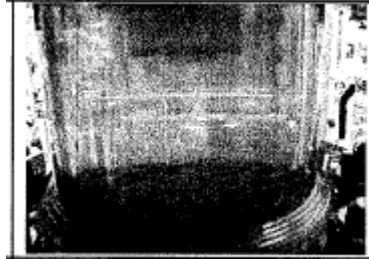
PL#	Test conditions	Complete test
3.20-21	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Iron nitrate (g) as Fe First 1</p> <p>Test method The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. An aqueous solution of 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) Pure water system</p>	<p>[(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</p> 
3.20-22	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Copper nitrate (g) as Fe First 3</p> <p>[sic: as Cu]</p> <p>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</p>	<p>[(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 average value.</p> 
3.20-23	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Aluminum nitrate (g) as Al First 1.5</p> <p>Total 1.5</p> <p>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</p>	<p>[(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 3</p> 

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

During introduction of copper hydroxide as Cu from tank.



During introduction of 0.5 g (total 1.5 g) of copper hydroxide from tank.

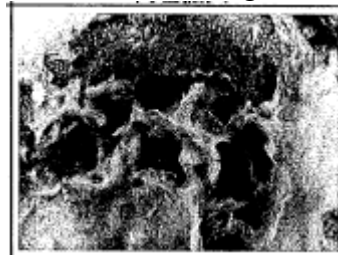


Upstream side

Appearance of rock wool



Same as left, enlarged



Lateral surface view

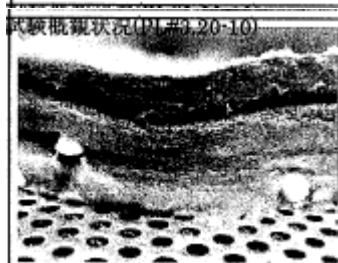
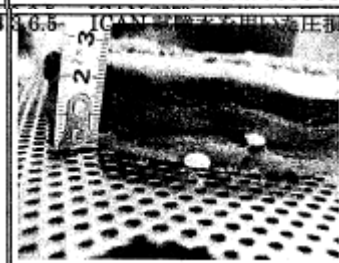
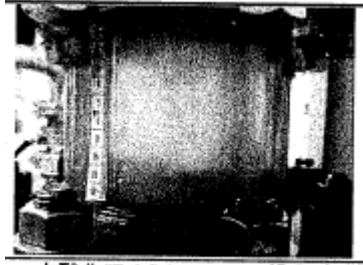


Fig. 3.3.6.5: Overview of pressure lost test using copper hydroxide (PL#3.20-10)

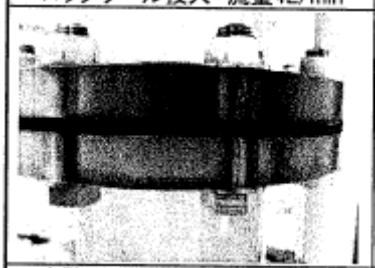
Rock wool introduction, flow rate 4 L/min



During introduction of 0.4 g of aluminum hydroxide as Al



During introduction of 0.4 g of aluminum hydroxide as Al



During introduction of 0.4 g of aluminum hydroxide as Al



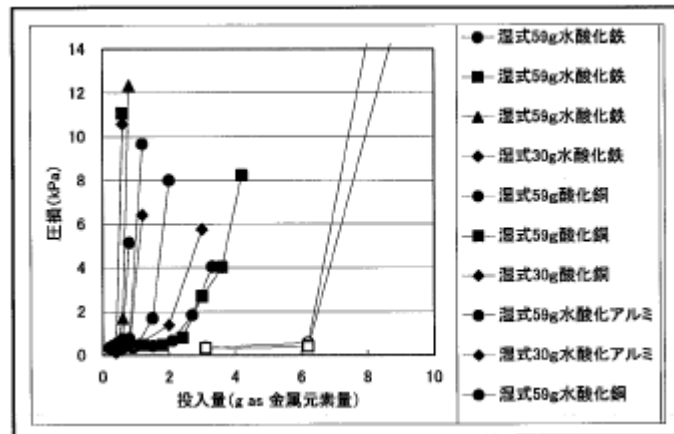
During introduction of 0.4 g (total 0.8 g) of aluminum hydroxide as Al



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



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



[(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

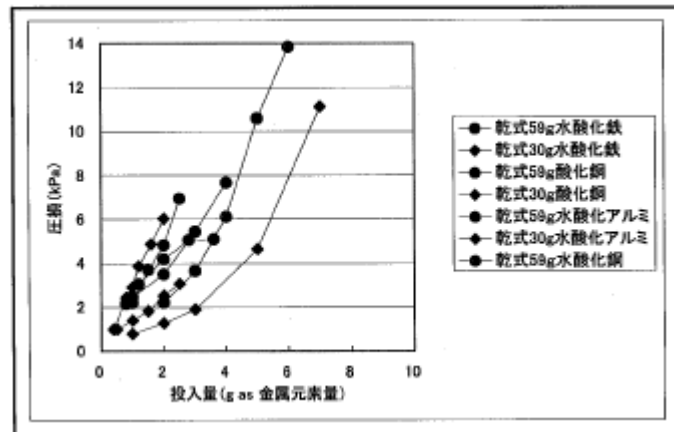
(diamond) wet 30 g, aluminum hydroxide

(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)

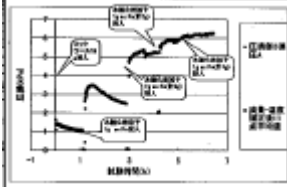
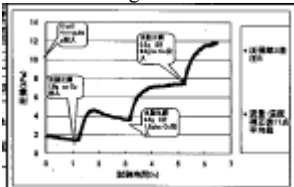
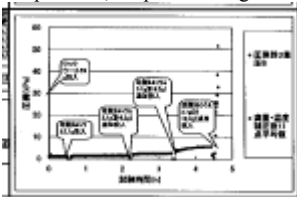
PL#	Test conditions	Preparation method	Test method	Complete test
3.21-1	Rock wool (g) 59	Dry pulverization	Dry rock wool was introduced into screen. The pressure loss measuring element was built into the device. Iron hydroxide was introduced through the debris inlet.	[(left) Pressure loss (kPa) (bottom) 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.
	Iron hydroxide (g) as Fe	First 1 Second 1 Third 1 Fourth 1 Total 4	Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system	
3.21-2	Rock wool (g) 59	Dry pulverization	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.	[(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.
	Copper hydroxide (g) as Cu	First 1 Second 0.5 Third 0.5 Total 2	Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system	
3.21-3	Rock wool (g) 59	Dry pulverization	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.	[(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.
	Calcium silicate (g)	First 3.1 Second 3.1 Third 3.1 Fourth 3.1 Total 12.4	Flow velocity cm/s (flow rate L/min) 2 (21.8) Boric acid/NaOH system	

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

PL#	Test conditions		Complete test
3.21-4-1	Rock wool (g)	59	[(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.
4-1	Preparation method Iron hydroxide (g) as Fe	Wet pulverization First 0.4	
		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		
3.21-4-2	Rock wool (g)	59	[(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.
4-2	Preparation method	Wet pulverization	
	Iron hydroxide (g) as Fe	First 0.2 Second 0.2 Third 0.2 Fourth 0.2	
		Total 0.8	
	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		
3.21-4-3	Rock wool (g)	59	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.
4-3	Preparation method Iron hydroxide (g) as Fe (red text indicates introduction from tank).	Wet pulverization	
	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		

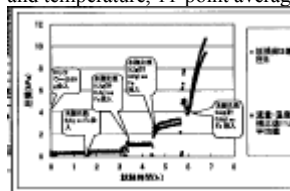
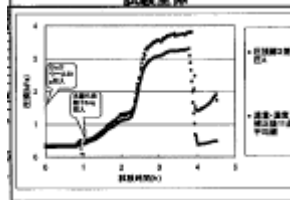


Fig. 3.3.7.2 Results of test of effects of water quality in boric acid/sodium hydroxide system (2/3)

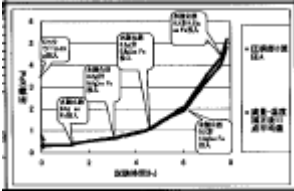
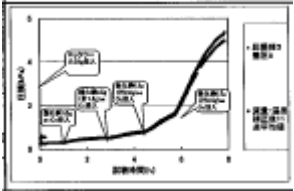
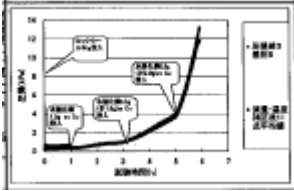
PL#	Test conditions	Complete test										
3.21-4-4	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Iron hydroxide (g) as Fe (red text indicates introduction from tank).</p> <p>Method of packing the insulating material The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Iron hydroxide was introduced from the tank.</p> <p>Flow velocity cm/s (flow rate L/min) 0.39 (4)</p> <p>Boric acid/NaOH system</p>	<p>[(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.</p> 										
3.21-5	<p>Rock wool (g) 59</p> <p>Preparation method Wet pulverization</p> <p>Copper oxide (g) as Cu (red text indicates introduction from tank).</p> <table border="1"> <tr> <td>First</td> <td>1</td> </tr> <tr> <td>Second</td> <td>0.5</td> </tr> <tr> <td>Third</td> <td>0.5</td> </tr> <tr> <td>Fourth</td> <td>0.5</td> </tr> <tr> <td>Total</td> <td>2.5</td> </tr> </table> <p>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.</p> <p>Flow velocity cm/s (flow rate L/min) 0.39 (4)</p> <p>Boric acid/NaOH system</p>	First	1	Second	0.5	Third	0.5	Fourth	0.5	Total	2.5	<p>[(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.</p> 
First	1											
Second	0.5											
Third	0.5											
Fourth	0.5											
Total	2.5											
3.21-6	<p>Rock wool (g) 30 (dry) + 5 (wet)</p> <p>Preparation method Dry, wet pulverization</p> <p>Copper hydroxide (g) as Cu (red text indicates introduction from tank).</p> <table border="1"> <tr> <td>First</td> <td>1</td> </tr> <tr> <td>Second</td> <td>0.5</td> </tr> <tr> <td>Third</td> <td>0.5</td> </tr> <tr> <td>Total</td> <td>2.0</td> </tr> </table> <p>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.</p> <p>Flow velocity cm/s (flow rate L/min) 0.39 (4)</p> <p>Boric acid/NaOH system</p>	First	1	Second	0.5	Third	0.5	Total	2.0	<p>[(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.</p> 		
First	1											
Second	0.5											
Third	0.5											
Total	2.0											

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

PL#	Test conditions		Complete test
3.21-7	Rock wool (g)	59	[(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.
	Preparation method	Wet pulverization	
	Aluminum hydroxide (g) as Al	First 0.4	
		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. Aluminum hydroxide particles were introduced through the debris inlet.		
	Flow velocity cm/s (flow rate L/min)	0.37 (4)	
	Boric acid/NaOH system		
3.21-8-1	Rock wool (g)	59	[(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.
	Preparation method	Wet pulverization	
	Calcium silicate (g)	First 0.2	
		Total 0.2	
	Test method		
	The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Calcium silicate was introduced through the debris inlet. When the pressure differential increased, 500 g of NaOH was introduced.		
	Flow velocity cm/s (flow rate L/min)	0.37 (4)	
	Boric acid/NaOH system		
3.21-8-2	Rock wool (g)	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, 11-point average value.
	Preparation method	Wet pulverization	
	Calcium silicate (g)	First 6.2 Second 3.1	
		Total 9.3	
	Test method		
	The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Calcium silicate was introduced through the debris inlet.		

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

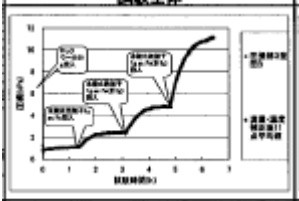
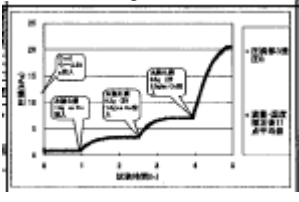
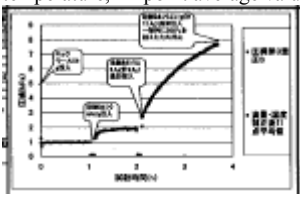
PL#	Test conditions	Complete test
3.22-1	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Iron hydroxide (g) as Fe First 1</p> <p>(red text indicates Second 1</p> <p>introduction from a Third 1</p> <p>tank)</p> <p>Total 3</p> <p>Test method</p> <p>The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Iron hydroxide was introduced from a tank.</p> <p>Flow velocity cm/s (flow rate L/min) 2 (21.8)</p> <p>Hydrazine/boric acid/NaOH system</p>	<p>[(left) Pressure loss (kPa) (bottom) Test period (h) (first capsule) 59 g of rock wool was introduced (second capsule) 1 g of iron hydroxide particles as Fe were introduced. (third capsule) 1 g of iron hydroxide particles as Fe were introduced (total 2 g) (fourth capsule) 1 g of iron hydroxide particles as Fe were introduced (total 3 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.</p> 
3.22-2	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Copper hydroxide (g) as First 1</p> <p>Cu (red text indicates Second 0.5</p> <p>introduction from a Third 0.5</p> <p>tank)</p> <p>Total 2</p> <p>Test method</p> <p>The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Copper hydroxide was introduced through the debris inlet.</p> <p>Flow velocity cm/s (flow rate L/min) 2 (21.8)</p> <p>Hydrazine/boric acid/NaOH system</p>	<p>[(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 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.</p> 
3.22-3	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Aluminum hydroxide First 1</p> <p>(g) as Al Second 0.5</p> <p>Third 0.5</p> <p>Total 2</p> <p>Test method</p> <p>The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Aluminum hydroxide was introduced through the debris inlet.</p> <p>Flow velocity cm/s (flow rate L/min) 2 (21.8)</p> <p>Hydrazine/boric acid/NaOH system</p>	<p>No trend data. Photograph taken. Operation was halted when the pressure loss increased to about 18 kPa with the introduction of 2 g of aluminum hydroxide as Al.</p>
3.22-4	<p>Rock wool (g) 59</p> <p>Preparation method Dry pulverization</p> <p>Calcium silicate (g) First 6.2</p> <p>Second 3.1</p> <p>Third 3.1</p> <p>Total 12.4</p> <p>Test method</p> <p>The pressure loss measuring element was built into the device and the rock wool was introduced through the debris inlet. Calcium silicate was introduced through the debris inlet.</p> <p>Flow velocity cm/s (flow rate L/min) 2 (21.8)</p> <p>Hydrazine/boric acid/NaOH system</p>	<p>[(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 g) (fourth 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.</p> 

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