

가 (3)

- (3) -

3.2.2

(1) (padding)

,
.
, (dipping)
(squeezing) .
가 , 가
가 .
,
가 .
가 .
가 가
,
, (pick up) ,
.
,
,
가
(tailing) .

(squeezing) ,

.
.

< 3.17>

,

(pore) 가

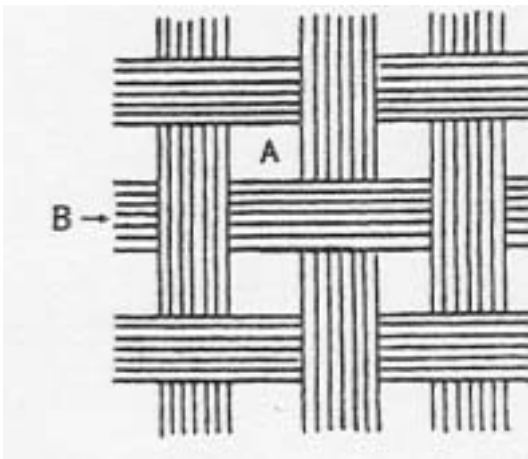
가 .

가 ,

,

(reduced

pressure)



A: - B: -

< 3.17>

2

,

.

1

3

,

(mangle)

10kW/hr,

(dryer)

4,000kW/hr

.

가

.

(nip)

,

.

(2)

(sorption mechanism)

가

,

가

(jigger)

(wince)

.

,

.

.

,

가

,

가

가

.

,

(micell) < 3.4> , 가

.

< 3.5>

가 , 가

(order) .

< 3.4> (dimension)

							Diamine Sky Blue FF
() (Å)	5	20~30	6	40	$3.5 \times 2.5 \times 1.5$	$7 \times 7 \times 2$	$30 \times 9 \times 3$

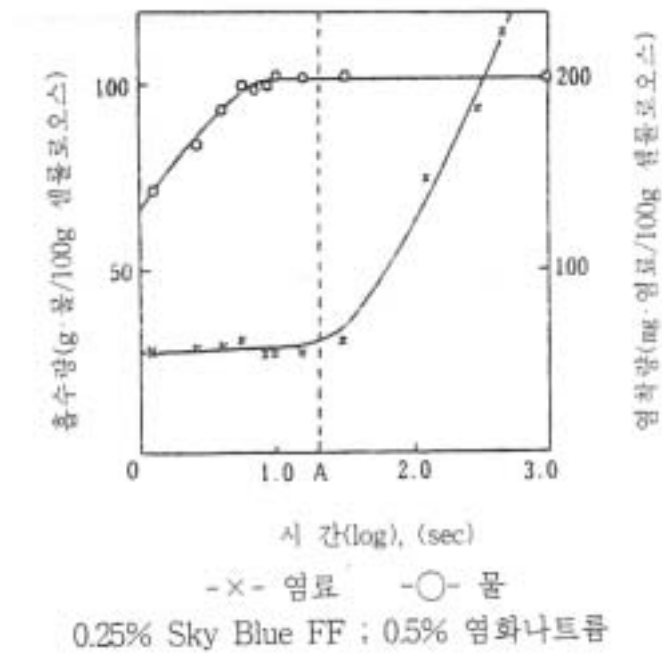
< 3.5> (sheet) (0)

	(g/l)	(sec)
	-	16
(sodium chloride)	50	20
(urea)	100	18
	100	30
(saccharose)	100	44

가 .

< 3.18> . 가

가 .



< 3.18> SF(staple fiber)

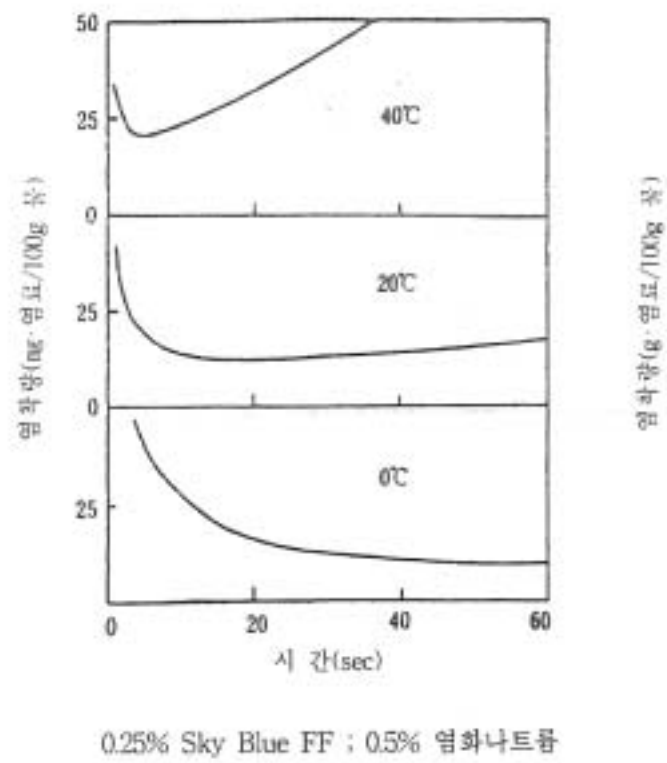
< 3.19> .

(1) ,

가 .

3

가 .



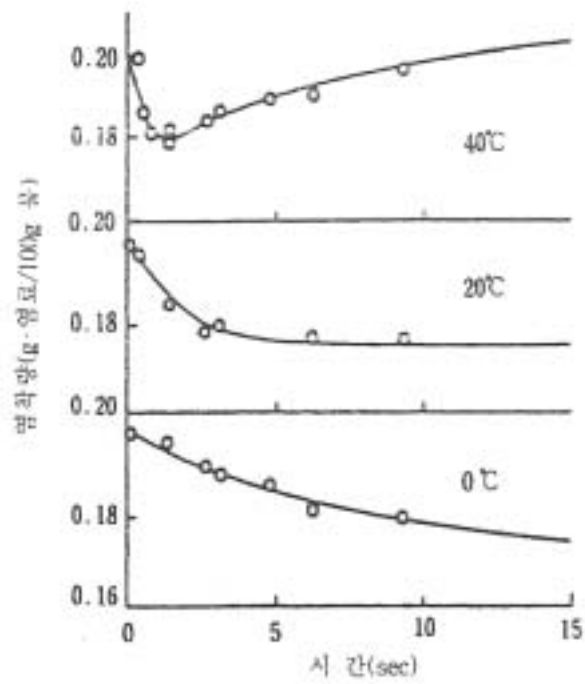
< 3.19>

< 3.20>

<

3.19>

가



0.25% Sky Blue FF ; 0.5% 염화나트륨

< 3.20> SF

(forsting)

가

가

가

< 3.19>

(3) (selective absorption)

가 , 가

.

C_0 , v ,

W , P , S ,

$$v = W \cdot P \cdot S / 100 \dots\dots\dots (3-27)$$

(constant) x , .

$$x = \dots\dots\dots (3-28)$$

, .

$$\frac{C_t}{C_0} = \frac{1}{x} \{1 + (x - 1)e^{-xvt/V} \dots\dots\dots (3-29)$$

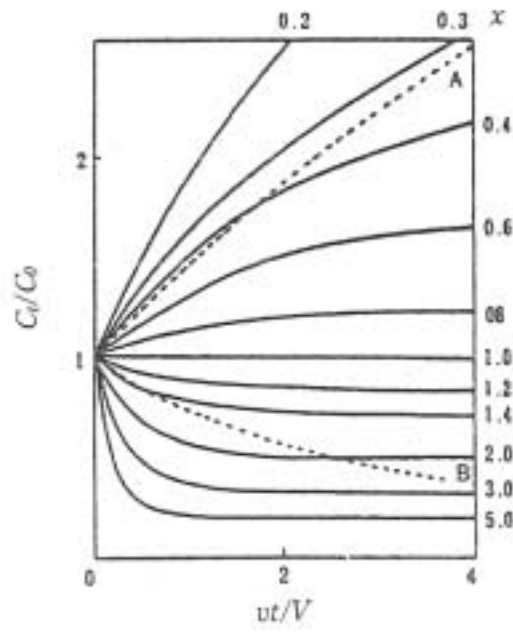
V , C_t t . C_t/C_0 vt/V

< 3.21> . 가 1 vt/V

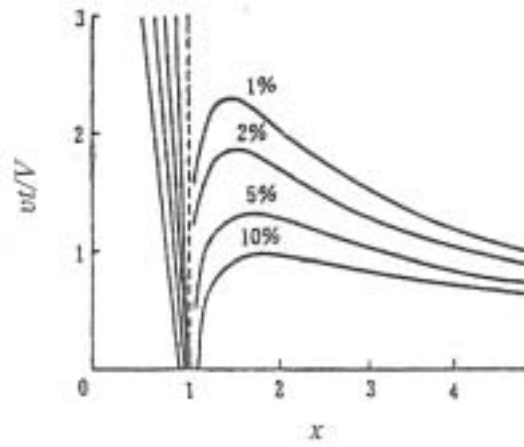
C_t/C_0 vt/V 가 2~3

. 가 1

. < 3.22> .



< 3.21> x C_t/C_0 vt/V



< 3.22> x

()

C_∞

가

(3-30)

,

< 3.22> .

$$\frac{C_t}{C_\infty} - 1 = (x - 1)e^{-xtv/V} \dots\dots\dots (3-30)$$

가

V/v ,

$$t \quad \frac{V}{v} \quad \frac{1}{WPS} \dots\dots\dots (3-31)$$

,

V .

v , P , S

W .

가

. ,

< 3.6>

.

. 가 .

.

< 3.6>

($x > 1$, $vt/V = 1.5$)

		(yd)				
		poplin	twill			duck
(%)		50	60	100	150*	100
()	40	5,000	2,000	1,200	-	800
	10	1,200	500	300	-	200
	2	240	100	60	40	40

: * : molten metal

K

C , v , S , V , P_1, P_2 , C_B ,

$$100V \frac{dC_B}{dt} + xP_2SC_B = (P_2 - P_1)SC \quad \dots\dots\dots (3-32)$$

(3-32) , .

$$C_{B,t} = \frac{P_2 - P_1}{xP_2} C \{1 + (\frac{xP_2}{P_2 - P_1} \cdot \frac{C_{B,0}}{C} - 1)\} e^{-t/T} \quad \dots\dots\dots (3-33)$$

$$T = \frac{100V}{xP_2S} \quad \dots\dots\dots (3-34)$$

$C_{B,t}$ $C_{B,0}$ t C_B . 가
 ,

$$e^{-t/T} = 0 \quad \dots\dots\dots (3-35)$$

, 가,

$$C = \frac{xP_2}{P_2 - P_1} C_{B,0} \quad \dots\dots\dots (3-36)$$

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(4)

,
 , .

(padder)

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(reduced pressure) ,

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 가 ,
 가 .
 .
 가 () ,
 가 .
 ,

< 3.7>

(cm/Hg)	(%)		
	(scrim)	(poplin)	P/C(67/33)
76	48	36	44
24.8	77	-	-
21.2	-	65	-
17.7	85.5	-	-
14.8	-	-	70.5
9.8	-	88.3	-
8.4	-	-	79.5
7.4	98.8	-	-
5.1	-	96.3	-
4.0	-	-	84.0
3.6	111.5	-	-
2.1	-	105.7	-
< 0.1	116.1	106.5	91.0

< 3.8>

	(kg/cm)	(indian head)		(6oz canvas)	
		(g/cc)	(%)	(g/cc)	(%)
(1) / (nip)	0	0.6~0.7	61~54	1.30~1.35	15~12
	15	0.645	58	1.43	7
	30	-	-	1.44	6
	45	0.505	68	1.51	2
/ / /	45	0.805	48	1.37	11
	15	0.782	49	-	-
	45	0.774	50	1.48	4
/	15	1.42	8	1.52	1
	45	1.42	8	1.52	1

: 0.1cm/Hg

가

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< 3.7>

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< 3.8>

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가

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가

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< 3.24>

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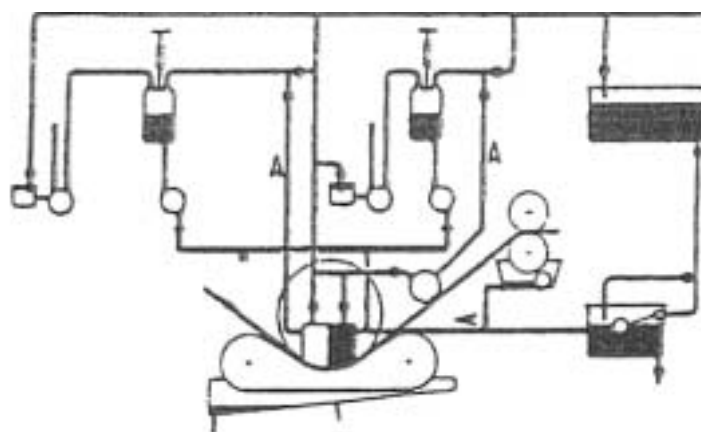
3.25>

.

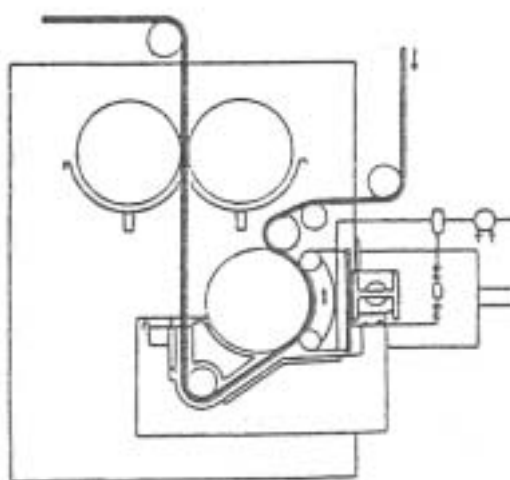
가

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가 ,
가 .
가 .
(, , , 가)
. , 가 .



< 3.24> (F. Norton)



< 3.25> Vacupad(Kleinewefers)

(5)

Potter , 2 100%
(elastic fabric) , (3-37) .

$$\frac{L}{W} = b \left(\frac{4R}{t_m - t_\infty} \right)^{1/2} \cdot \tan \left(\frac{t_0 - t_m}{t_m - t_\infty} \right)^{1/2} \dots\dots\dots (3-37)$$

$$t_m = \frac{Tw}{100} + \frac{w}{\rho} \dots\dots\dots (3-38)$$

L , W , t_∞ , t_m t_0 ,
 , R , w
 , ρ , T , b . ,
가 , 가
가 .

, 가 가 가 .

$$L/W \propto R^{1/2}$$

$$n \propto n^{1/2}$$

.
 n , 1/n ,
 $1/n^{1/2}$.
 , ,
 .

$$P_{\max} = \frac{2}{\pi} \cdot \frac{L}{h_0 W} = \left(\frac{2}{\pi} \cdot \frac{L}{WD} \cdot \frac{E}{1 - \eta^2} \right)^{1/2} \dots\dots\dots (3-39)$$

$$P_{\text{mean}} = \frac{\pi}{4} \cdot P_{\max} \dots\dots\dots (3-40)$$

$$T = \left\{ \left(\frac{t_0 - \frac{b}{c}}{w} - \frac{1}{\rho} \right) + \frac{b}{w \left(\frac{2}{\pi} \cdot \frac{L}{WD} \cdot \frac{E}{1 - \eta^2} + C \right)} \right\} \cdot 100 \gamma \dots\dots\dots (3-41)$$

P_{max} , P_{mean} , T , h_0 (nip) , γ
 , E , η (poisson) , D
 , L , W . ,

.
 (nip) .

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 Hollies 가 (capillary tube)

,
 가 .

.
 , , (tow)
 (sliver) ,
 .