LAMPIRAN

Lampiran 1. Perhitungan

1.1 Perhitungan Densitas

RUMUS, $\rho = \frac{massa\ piknometer\ isi - massa\ piknometer\ kosong}{volume\ piknometer}$

Percobaan Variable I

Tabel 13. Hasil Densitas Filtrat Variable I

Variable	Volume Piknometer (ml)	Piknometer kosong (gr)	Piknometer isi (gr)
Menit ke – 3	25	16,91	41,92
Menit ke – 6	25	16,91	41,52
Menit ke – 9	25	16,91	41,47
Menit ke – 12	25	16,91	41,42
Menit ke – 15	25	16,91	41,39

a. Menit ke-3

$\rho = \frac{(41{,}92 - 16{,}91)\ gr}{25\ ml} = 1{,}0004\ gr/ml$

b. Menit ke-6

$\rho = \frac{(41{,}52 - 16{,}91)\ gr}{25\ ml} = 0{,}9844\ gr/ml$

c. Menit ke-9

$\rho = \frac{(41{,}47 - 16{,}91)\ gr}{25\ ml} = 0{,}9824\ gr/ml$

d. Menit ke-12

$\rho = \frac{(41{,}42 - 16{,}91)\ gr}{25\ ml} = 0{,}9804\ gr/ml$

e. Menit ke-15

$\rho = \frac{(41{,}39 - 16{,}91)\ gr}{25\ ml} = 0{,}9792\ gr/ml$

1) Percobaan Variable II

Tabel 14. Hasil Densitas Filtrat Variable II

Variable	Volume Piknometer (ml)	Piknometer kosong (gr)	Piknometer isi (gr)
Menit ke – 3	25	16,91	42,06
Menit ke – 6	25	16,91	42,02
Menit ke – 9	25	16,91	42,00
Menit ke – 12	25	16,91	41,95
Menit ke – 15	25	16,91	41,92

a. Menit ke-3

$$\rho = \frac{(42{,}06 - 16{,}91)\ gr}{25\ ml} = 1{,}0060\ gr/ml$$

b. Menit ke-6

$$\rho = \frac{(42{,}02 - 16{,}91)\ gr}{25\ ml} = 1{,}0044\ gr/ml$$

c. Menit ke-9

$$\rho = \frac{(42{,}00 - 16{,}91)\ gr}{25\ ml} = 1{,}0036\ gr/ml$$

Menit ke-12

$$\rho = \frac{(41{,}95 - 16{,}91)\ gr}{25\ ml} = 1{,}0016\ gr/ml$$

Menit ke-15

$$\rho = \frac{(41{,}92 - 16{,}91)\ gr}{25\ ml} = 1{,}0004\ gr/ml$$

2) Percobaan Variable III

Tabel 15. Hasil Densitas Filtrat Variable III

Variable	Volume Piknometer (ml)	Piknometer kosong (gr)	Piknometer isi (gr)
Menit ke – 3	25	16,91	42,15
Menit ke – 6	25	16,91	42,11
Menit ke – 9	25	16,91	42,06
Menit ke – 12	25	16,91	42,03
Menit ke – 15	25	16,91	42,00

a. Menit ke-3

$$\rho = \frac{(42{,}15 - 16{,}91)\ gr}{25\ ml} = 1{,}0096\ gr/ml$$

b. Menit ke-6

$$\rho = \frac{(42{,}11 - 16{,}91)\ gr}{25\ ml} = 1{,}0080\ gr/ml$$

c. Menit ke-9

$$\rho = \frac{(42{,}06 - 16{,}91)\ gr}{25\ ml} = 1{,}0060\ gr/ml$$

d. Menit ke-12

$$\rho = \frac{(42{,}03 - 16{,}91)\ gr}{25\ ml} = 1{,}0048\ gr/ml$$

e. Menit ke-15

$$\rho = \frac{(42{,}00 - 16{,}91)\ gr}{25\ ml} = 1{,}0036\ gr/ml$$

1.2 Perhitungan Viskositas

RUMUS, $\mu_x = \frac{tx \times \rho x}{t0 \times \rho 0} \times \mu_0$

1) Percobaan Variable I

Tabel 16. Hasil Viskositas Filtrat Variable I

Variable	μ_0 (Cp)	t_0 (detik)	ϱ_0 (gr/ml)	t_x (detik)	ϱ_x (gr/ml)
Menit ke – 3	1,004	1	1	1,6	1,0004
Menit ke – 6	1,004	1	1	1,5	0,9844
Menit ke – 9	1,004	1	1	1,4	0,9824
Menit ke – 12	1,004	1	1	1,3	0,9804
Menit ke – 15	1,004	1	1	1,2	0,9792

a. Menit ke-3

$$\mu_x = \frac{1,6 \times 1,0004}{1 \times 1} \times 1,004 = 1,6070 \text{ Cp}$$

b. Menit ke-6

$$\mu_x = \frac{1,5 \times 0,9844}{1 \times 1} \times 1,004 = 1,4825 \text{ Cp}$$

c. Menit ke-9

$$\mu_x = \frac{1,4 \times 0,9824}{1 \times 1} \times 1,004 = 1,3809 \text{ Cp}$$

d. Menit ke-12

$$\mu_x = \frac{1,3 \times 0,9804}{1 \times 1} \times 1,004 = 1,2796 \text{ Cp}$$

e. Menit ke-15

$$\mu_x = \frac{1,2 \times 0,9792}{1 \times 1} \times 1,004 = 1,1797 \text{ Cp}$$

2) Percobaan Variable II

Tabel 17. Hasil Viskositas Filtrat Variable II

Variable	μ_0 (Cp)	t_0 (detik)	ϱ_0 (gr/ml)	t_x (detik)	ϱ_x (gr/ml)
Menit ke – 3	1,004	1	1	1,8	1,0060
Menit ke – 6	1,004	1	1	1,7	1,0044

Menit ke – 9	1,004	1	1	1,6	1,0036
Menit ke – 12	1,004	1	1	1,5	1,0016
Menit ke – 15	1,004	1	1	1,4	1,0004

a. Menit ke-3

$$\mu_x = \frac{1,8 \times 1,0060}{1 \times 1} \times 1,004 = 1,8180 \text{ Cp}$$

b. Menit ke-6

$$\mu_x = \frac{1,7 \times 1,0044}{1 \times 1} \times 1,004 = 1,7143 \text{ Cp}$$

c. Menit ke-9

$$\mu_x = \frac{1,6 \times 1,0036}{1 \times 1} \times 1,004 = 1,6122 \text{ Cp}$$

d. Menit ke-12

$$\mu_x = \frac{1,5 \times 1,0016}{1 \times 1} \times 1,004 = 1,5084 \text{ Cp}$$

e. Menit ke-15

$$\mu_x = \frac{1,4 \times 1,0004}{1 \times 1} \times 1,004 = 1,4061 \text{ Cp}$$

3) Percobaan Variable III

Tabel 18. Hasil Viskositas Filtrat Variable III

Variable	μ_0 (Cp)	t_0 (detik)	ϱ_0 (gr/ml)	t_x (detik)	ϱ_x (gr/ml)
Menit ke – 3	1,004	1	1	1,9	1,0096
Menit ke – 6	1,004	1	1	1,8	1,0080
Menit ke – 9	1,004	1	1	1,7	1,0060
Menit ke – 12	1,004	1	1	1,6	1,0048
Menit ke – 15	1,004	1	1	1,5	1,0036

a. Menit ke-3

$$\mu_x = \frac{1,9 \times 1,0096}{1 \times 1} \times 1,004 = 1,9259 \text{ Cp}$$

b. Menit ke-6

$$\mu_x = \frac{1,8 \times 1,0080}{1 \times 1} \times 1,004 = 1,8259 \text{ Cp}$$

c. Menit ke-9

$$\mu_x = \frac{1{,}7 \times 01{,}0060}{1 \times 1} \times 1{,}004 = 1{,}7170 \text{ Cp}$$

d. Menit ke-12

$$\mu_x = \frac{1{,}6 \times 1{,}0048}{1 \times 1} \times 1{,}004 = 1{,}6141 \text{ Cp}$$

e. Menit ke-15

$$\mu_x = \frac{1{,}6 \times 1{,}0036}{1 \times 1} \times 1{,}004 = 1{,}5114 \text{ Cp}$$

1.3 Perhitungan Kadar Air

Kadar Air $\frac{C-B}{A} x\,100$

A= Berat cuplikan bahan
B= Berat wadah + cuplikan bahan setelah dikeringkan
C= Berat wadah + cuplikan bahan sebelum dikeringkan

1) Percobaan Variable I

Tabel 19. Hasil Cake Variable I

Plate	Berat Cake awal (A) (gr)	Berat wadah + cake sebelum dioven (C) (gr)	Berat wadah + cake setelah dioven (B) (gr)
1	430,60	621,16	457,01
2	600,35	791,57	589,72
3	790,20	981,55	726,67

a. Plate ke-1

Kadar air = $\frac{621{,}16-457{,}01}{430{,}60} x\,100 = 38{,}12$

b. Plate ke-2

Kadar air = $\frac{791{,}57-589{,}72}{600{,}35} x\,100 = 33{,}02$

c. Plate ke-3

Kadar air = $\frac{981{,}55-726{,}67}{790{,}20} x\,100 = 32{,}25$

2) Percobaan Variable II

Tabel 20. Hasil Cake Variable II

Plate	Berat Cake awal (A) (gr)	Berat wadah + cake sebelum dioven (C) (gr)	Berat wadah + cake setelah dioven (B) (gr)

1	900,45	1091,01	693,81
2	1150,30	1341,52	841,32
3	1400,70	1592,05	1011,85

a. Plate ke-1

Kadar air = $\frac{1091,01-693,81}{900,45} x\,100 = 44,11$

b. Plate ke-2

Kadar air = $\frac{1341,52-841,32}{1150,30} x\,100 = 43,48$

c. Plate ke-3

Kadar air = $\frac{1592,05-1011,85}{1400,70} x\,100 = 41,42$

3) Percobaan Variable III

Tabel 21. Hasil Cake Variable III

Plate	**Berat Cake awal (A) (gr)**	**Berat wadah + cake sebelum dioven (C) (gr)**	**Berat wadah + cake setelah dioven (B) (gr)**
1	1150,75	1341,31	790,71
2	1480,15	1671,37	991,72
3	1700,30	1891,65	1142,15

a. Plate ke-1

Kadar air = $\frac{1341,31-790,71}{1150,75} x\,100 = 47,84$

b. Plate ke-2

Kadar air = $\frac{1671,37-991,72}{1480,15} x\,100 = 45,91$

c. Plate ke-3

Kadar air = $\frac{1891,65-1142,15}{1700,30} x\,100 = 44,08$

1.4 Perhitungan α

RUMUS, α $\propto \frac{Kp\,A^2(-\Delta P)}{\mu Cs}$

1) Percobaan Variable I

Tabel 22. Hasil α Variable I

Variable	Kp	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)	Cs

	($\frac{s}{m}^6$)				($\frac{m}{kg}^3$)
Menit ke – 3	59376	0,00229	196133	0,001607	250
Menit ke – 6	59376	0,00229	196133	0,0014825	250
Menit ke – 9	59376	0,00229	196133	0,0013809	250
Menit ke – 12	59376	0,00229	196133	0,0012796	250
Menit ke – 15	59376	0,00229	196133	0,0011797	250

a. Menit ke-3

$$0{,}00229m$$
$$0{,}00229m$$
$$196133\,N/m$$
$$0{,}001607\,N.s/m$$
$$(¿¿2)x(250\frac{m}{kg}3)$$
$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿} \quad = 1{,}414 \text{ x } 10^5 \text{m/kg}$$
$$x(¿¿2)¿$$
$$\left(59376\frac{s}{m}6\right)¿$$
$$¿¿$$

b. Menit ke-6

$$0{,}00229\,m$$
$$0{,}00229\,m$$
$$196133\,N/m$$
$$0{,}0014825\,N.s/m$$
$$(¿¿2)x(250\frac{m}{kg}3)$$
$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿} \quad =1{,}533 \text{ x } 10^5 \text{ m/kg}$$
$$x(¿¿2)¿$$
$$\left(59376\frac{s}{m}6\right)¿$$
$$¿¿$$

c. Menit ke-9

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0013809\,N.s/m \\ (¿¿2)\,x\,(250\frac{m}{kg}3) \\ x\,(¿¿2)\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(59376\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 1{,}646 \text{ x } 10^5 \text{ m/kg}$$

d. Menit ke-12

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0012796\,N.s/m \\ (¿¿2)\,x\,(250\frac{m}{kg}3) \\ x\,(¿¿2)\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(59376\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 1{,}776 \text{ x } 10^5 \text{ m/kg}$$

e. Menit ke-15

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0011797\,N.s/m \\ (¿¿2)\,x\,(250\frac{m}{kg}3) \\ x\,(¿¿2)\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(59376\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 1{,}927 \text{ x } 10^5 \text{m/kg}$$

2) Percobaan Variable II

Tabel 23. Hasil α Variable II

Variable	Kp ($\frac{s}{m}^6$)	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)	Cs ($\frac{m}{kg}^3$)
Menit ke – 3	46186	0,00229	196133	0,001818	250
Menit ke – 6	46186	0,00229	196133	0,0017143	250
Menit ke – 9	46186	0,00229	196133	0,0016122	250
Menit ke – 12	46186	0,00229	196133	0,0015084	250
Menit ke – 15	46186	0,00229	196133	0,0014061	250

a. Menit ke-3

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}001818\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)\,¿ \\ \left(46186\,\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 9{,}726 \text{ x } 10^4 \text{ m/kg}$$

b. Menit ke-6

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0017143\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)\,¿ \\ \left(46186\,\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 1{,}031 \text{ x } 10^5 \text{ m/kg}$$

c. Menit ke-9

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0016122\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}\,3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(46186\,\frac{s}{m}\,6\right)¿ \\ ¿¿ \end{array} = 1{,}097 \text{ x } 10^5 \text{ m/kg}$$

d. Menit ke-12

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0015084\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}\,3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(46186\,\frac{s}{m}\,6\right)¿ \\ ¿¿ \end{array} = 1{,}172 \text{ x } 10^5 \text{ m/kg}$$

e. Menit ke-15

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0014061\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}\,3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(46186\,\frac{s}{m}\,6\right)¿ \\ ¿¿ \end{array} = 1{,}257 \text{ x } 10^5 \text{ m/kg}$$

3) Percobaan Variable III

Tabel 24. Hasil α Variable III

Variable	Kp ($\frac{s}{m}^6$)	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)	Cs ($\frac{m}{kg}^3$)
Menit ke – 3	40360	0,00229	196133	0,0019259	250
Menit ke – 6	40360	0,00229	196133	0,0018217	250
Menit ke – 9	40360	0,00229	196133	0,001717	250
Menit ke – 12	40360	0,00229	196133	0,0016141	250
Menit ke – 15	40360	0,00229	196133	0,0015114	250

a. Menit ke-3

$$0{,}00229\,m$$
$$0{,}00229\,m$$
$$196133\,N/m$$
$$0{,}0019259\,N.s/m$$
$$(¿¿2)\,x\,(250\,\frac{m}{kg}\,3)$$

$$\alpha \quad x(¿¿2)\,\frac{x(¿¿2)}{¿}\,x(¿¿2)¿\left(40360\,\frac{s}{m}\,6\right)¿¿¿ = 0{,}8023 \text{ x } 10^4 \text{ m/kg}$$

b. Menit ke-6

$$0{,}00229\,m$$
$$0{,}00229\,m$$
$$196133\,N/m$$
$$0{,}0018217\,N.s/m$$
$$(¿¿2)\,x\,(250\,\frac{m}{kg}\,3)$$

$$\alpha \quad x(¿¿2)\,\frac{x(¿¿2)}{¿}\,x(¿¿2)¿\left(40360\,\frac{s}{m}\,6\right)¿¿¿ = 8{,}482 \text{ x } 10^4 \text{ m/kg}$$

c. Menit ke-9

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}001717\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(40360\,\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 8{,}999 \text{ x } 10^4 \text{ m/kg}$$

d. Menit ke-12

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0016141\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(40360\,\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 9{,}572 \text{ x } 10^4 \text{ m/kg}$$

e. Menit ke-15

$$\alpha \quad \begin{array}{c} 0{,}00229\,m \\ 0{,}00229\,m \\ 196133\,N/m \\ 0{,}0015114\,N.s/m \\ (¿¿2)\,x\,(250\,\frac{m}{kg}3) \\ x\,(¿¿2)\,\frac{x\,(¿¿2)}{¿} \\ x\,(¿¿2)¿ \\ \left(40360\,\frac{s}{m}6\right)¿ \\ ¿¿ \end{array} = 1{,}022 \text{ x } 10^5 \text{ m/kg}$$

1.5 Perhitungan Rm

1) Percobaan Variable I

Tabel 25. Hasil Rm Variable I

Variable	B ($\frac{s}{m}$ ^{3})	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)
Menit ke – 3	135524	0,00229	196133	0,001607
Menit ke – 6	135524	0,00229	196133	0,0014825
Menit ke – 9	135524	0,00229	196133	0,0013809
Menit ke – 12	135524	0,00229	196133	0,0012796
Menit ke – 15	135524	0,00229	196133	0,0011797

a. Menit ke-3

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(135524\frac{s}{m}6\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}001607\,N.s/m\\(¿¿2)\end{matrix} = 36538164083 \text{ m}^{-1}$$

b. Menit ke-6

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(135524\frac{s}{m}6\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0014825\,N.s/m\\(¿¿2)x\end{matrix} = 39606630476 \text{ m}^{-1}$$

c. Menit ke-9

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(135524\frac{s}{m}6\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0013809\,N.s/m\\(¿¿2)x\end{matrix} = 42520696416 \text{ m}^{-1}$$

d. Menit ke-12

$$\alpha \quad \frac{0{,}00229\,m \;\; 196133\,N/m \;\; 0{,}0012796\,N.s/m \;\; (¿¿2)x}{x(¿¿2)\dfrac{x(¿¿2)}{¿}\left(135524\dfrac{s}{m}6\right)¿¿} = 45886862833\ \text{m}^{-1}$$

e. Menit ke-15

$$\alpha \quad \frac{0{,}00229\,m \;\; 196133\,N/m \;\; 0{,}0011797\,N.s/m \;\; (¿¿2)x}{x(¿¿2)\dfrac{x(¿¿2)}{¿}\left(135524\dfrac{s}{m}6\right)¿¿} = 49772679224\ \text{m}^{-1}$$

2) Percobaan Variable II

Tabel 26. Hasil Rm Variable II

Variable	B ($\frac{s}{m}^3$)	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)
Menit ke – 3	71845	0,00229	196133	0,001818
Menit ke – 6	71845	0,00229	196133	0,0017143
Menit ke – 9	71845	0,00229	196133	0,0016122
Menit ke – 12	71845	0,00229	196133	0,0015084
Menit ke – 15	71845	0,00229	196133	0,0014061

a. Menit ke-3

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(71845\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}001818\,N.s/m\\(¿¿2)\end{matrix} = 17121785713\ \text{m}^{-1}$$

b. Menit ke-6

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(71845\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0017143\,N.s/m\\(¿¿2)\end{matrix} = 18157502436\ \text{m}^{-1}$$

c. Menit ke-9

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(71845\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0016122\,N.s/m\\(¿¿2)\end{matrix} = 19307410015\ \text{m}^{-1}$$

d. Menit ke-12

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(71845\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0015084\,N.s/m\\(¿¿2)\end{matrix} = 20636042446\ \text{m}^{-1}$$

e. Menit ke-15

$$\alpha \quad \frac{0{,}00229\,m \; x(¿¿2) \; 196133\,N/m \; 0{,}0014061\,N.s/m \; (¿¿2)}{\left(71845\,\frac{s}{m}3\right)¿¿ \; ¿\frac{x(¿¿2)}{¿}} = 22137405893 \text{ m}^{-1}$$

3) Percobaan Variable III

Tabel 27. Hasil Rm Variable III

Variable	B ($\frac{s}{m}$ ^{3})	A (m^2)	ΔP (N/m^2)	μ ($N.s/m^2$)
Menit ke – 3	42678	0,00229	196133	0,0019259
Menit ke – 6	42678	0,00229	196133	0,0018217
Menit ke – 9	42678	0,00229	196133	0,001717
Menit ke – 12	42678	0,00229	196133	0,0016141
Menit ke – 15	42678	0,00229	196133	0,0015114

a. Menit ke-3

$$\alpha \quad \frac{0{,}00229\,m \; 196133\,N/m \; 0{,}0019259\,N.s/m \; (¿¿2)}{x(¿¿2)\;\frac{x(¿¿2)}{¿} \; \left(42678\,\frac{s}{m}3\right)¿¿} = 9601005379 \text{ m}^{-1}$$

b. Menit ke-6

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(42678\,\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0018217\,N.s/m\\(¿¿2)\end{matrix} = 10150176352\ \text{m}^{-1}$$

c. Menit ke-9

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(42678\,\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}001717\,N.s/m\\(¿¿2)\end{matrix} = 10769118381\ \text{m}^{-1}$$

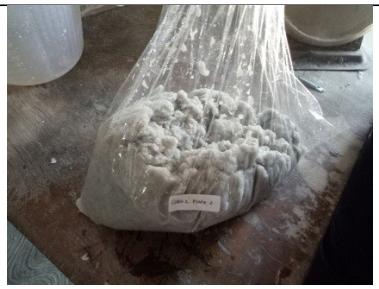
d. Menit ke-12

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(42678\,\frac{s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0016141\,N.s/m\\(¿¿2)\end{matrix} = 11455657184\ \text{m}^{-1}$$

e. Menit ke-15

$$\alpha \quad x(¿¿2)\frac{x(¿¿2)}{¿\left(\frac{42678\,s}{m}3\right)¿¿} \quad \begin{matrix}0{,}00229\,m\\196133\,N/m\\0{,}0015114\,N.s/m\\(¿¿2)\end{matrix} = 12234071894\ \text{m}^{-1}$$

Lampiran 2. Hasil Foto Praktikum

No	Foto Hasil Praktikum	Keterangan
1.	 Gambar 18 . Limbah Onggok	Limbah ampas tepung tapioka (onggok) yang belum di filtrasi
2.	 Gambar 19. Hasil Filtrat	Filtrat hasil dari filtrasi limbah ampas tepung tapioka (onggok)
3.	 Gambar 20 . Hasil Cake Basah	Cake hasil dari filtrasi limbah ampas tepung tapioka (onggok) yang belum melalui proses pengeringan (dioven)

4.	 Gambar 21. Hasil Cake Kering	Cake hasil dari filtrasi limbah ampas tepung tapioka (onggok) yang sudah melalui proses pengeringan (dioven)
5.	 Gambar 22. Alat Filtrasi	Proses filtrasi dengan alat *plate and frame filter press*