

LAMPIRAN 1

PERHITUNGAN KOKRISTAL GLIBENKLAMID

Perbandingan Glibenklamid dengan Piperazin (1 : 1)

Glibenklamid :

$$\begin{aligned}\text{Mol} &= \frac{\text{gram}}{\text{BM}} \\ &= \frac{0,005 \text{ g}}{494} \\ &= 0,00001 \text{ mol}\end{aligned}$$

Piperazin :

$$\begin{aligned}\text{Gram} &= \text{mol} \times \text{BM} \\ &= 0,00001 \text{ mol} \times 86,14 \\ &= 0,0008614 \text{ gram} \\ &= 0,8614 \text{ mg}\end{aligned}$$

Penimbangan pembuatan kokristal

Glibenklamid :

$$\begin{aligned}\text{Mol} &= \frac{\text{gram}}{\text{BM}} \\ &= \frac{3 \text{ gram}}{494} \\ &= 0,0060728745 \text{ mol}\end{aligned}$$

Piperazin :

$$\begin{aligned}\text{Gram} &= \text{mol} \times \text{BM} \\ &= 0,0060728745 \text{ mol} \times 86,14 \\ &= 0,5231174089 \text{ gram} \\ &= 523,1174089 \text{ mg}\end{aligned}$$

LAMPIRAN 2
EVALUASI SERBUK

1. Formula 1

a. Uji Sifat Alir dan Sudut Istirahat

Bobot sampel yang ditimbang adalah 20 gram.

No	Waktu (s)	Diameter (cm)	Tinggi (cm)
1	3.99	13	2
2	3.89	11	2
3	3.54	9	1,8
\bar{x}	3.80	11	1,93

$$\begin{aligned} \text{Sudut Istirahat} &= \tan \alpha = \frac{2h}{D} \\ &= \frac{2 \times 1,93}{11} \\ &= 19,33^\circ \text{ (serbuk sangat mudah mengalir)} \end{aligned}$$

Persyaratan :

$\alpha = 25-30^\circ$: serbuk sangat mudah mengalir

$\alpha = 30-38^\circ$: serbuk mudah mengalir

$\alpha = \geq 38^\circ$: serbuk kurang mengalir

b. Uji Kompresibilitas

1) BJ Nyata

Syarat : 0,2-0,6 g/mL

Berat (W)	V ₀	V ₁₀	V ₁₀₀	V ₅₀₀
10 gram	24 mL	22 mL	21 mL	20 mL

$$\begin{aligned} P &= \frac{W}{V} \\ &= \frac{10 \text{ gram}}{24 \text{ mL}} = 0,416 \text{ g/mL} \end{aligned}$$

2) BJ Mampat

Syarat : 0,2-0,6 g/mL

$$P_n = \frac{W}{V_n}$$

- $P_{10} = \frac{10 \text{ gram}}{22 \text{ mL}} = 0,454 \text{ g/mL}$
- $P_{100} = \frac{10 \text{ gram}}{21 \text{ mL}} = 0,476 \text{ g/mL}$
- $P_{500} = \frac{10 \text{ gram}}{20 \text{ mL}} = 0,5 \text{ g/mL}$

3) Kadar Pemampatan

$$KP(n) = \frac{V_0 - V(n)}{V_0} \times 100\%$$

- $KP(10) = \frac{24 \text{ mL} - 22 \text{ mL}}{24 \text{ mL}} \times 100\% = 8,33\%$
- $KP(100) = \frac{24 \text{ mL} - 21 \text{ mL}}{24 \text{ mL}} \times 100\% = 12,5\%$
- $KP(500) = \frac{24 \text{ mL} - 20 \text{ mL}}{24 \text{ mL}} \times 100\% = 16,67\%$

4) Perbandingan Haussner

$$\text{Angka Haussner (n)} = \frac{\text{BJ setelah pemampatan}}{\text{BJ sebelum pemampatan}}$$

- $\text{Angka haussner (10)} = \frac{0,454 \text{ g/mL}}{0,416 \text{ g/mL}} = 1,09$
- $\text{Angka haussner (100)} = \frac{0,476 \text{ g/mL}}{0,416 \text{ g/mL}} = 1,14$
- $\text{Angka haussner (500)} = \frac{0,5 \text{ g/mL}}{0,416 \text{ g/mL}} = 1,20$

5) Persen Kompresibilitas

$$\%K(n) = \frac{\text{BJ mampat} - \text{BJ nyata}}{\text{BJ mampat}} \times 100\%$$

- $\%K(10) = \frac{0,454 - 0,416}{0,454} \times 100\% = 8,37\%$
- $\%K(100) = \frac{0,476 - 0,416}{0,476} \times 100\% = 12,6\%$
- $\%K(500) = \frac{0,5 - 0,416}{0,5} \times 100\% = 16,8\%$

2. Formula 2

a. Uji Sifat Alir dan Sudut Istirahat

No	Waktu (s)	Diameter (cm)	Tinggi (cm)
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1	3.94	6,5	3
2	3.93	6,5	2,5
3	3.99	6	2,5
\bar{x}	3,95	6,3	2,7

$$\text{Sudut Istirahat} = \tan \alpha = \frac{2h}{D}$$

$$= \frac{2 \times 2,7}{6,3}$$

$$= 40,60^\circ \text{ (serbuk kurang mengalir)}$$

Persyaratan :

$\alpha = 25-30^\circ$: serbuk sangat mudah mengalir

$\alpha = 30-38^\circ$: serbuk mudah mengalir

$\alpha = \geq 38^\circ$: serbuk kurang mengalir

b Uji Kompresibilitas

1) BJ Nyata

Syarat : 0,2-0,6 g/mL

Berat (W)	V ₀	V ₁₀	V ₁₀₀	V ₅₀₀
10 gram	22 mL	19 mL	18 mL	17 mL

$$P = \frac{W}{V}$$

$$= \frac{10 \text{ gram}}{22 \text{ mL}} = 0,454 \text{ g/mL}$$

6) BJ Mampat

Syarat : 0,2-0,6 g/mL

$$P_n = \frac{W}{V_n}$$

- $P_{10} = \frac{10 \text{ gram}}{19 \text{ mL}} = 0,526 \text{ g/mL}$

- $P_{100} = \frac{10 \text{ gram}}{18 \text{ mL}} = 0,555 \text{ g/mL}$

- $P_{500} = \frac{10 \text{ gram}}{17 \text{ mL}} = 0,588 \text{ g/mL}$

7) Kadar Pemampatan

$$KP(n) = \frac{V_0 - V(n)}{V_0} \times 100\%$$

- $KP(10) = \frac{22 \text{ mL} - 19 \text{ mL}}{22 \text{ mL}} \times 100\% = 13,63\%$
- $KP(100) = \frac{22 \text{ mL} - 18 \text{ mL}}{22 \text{ mL}} \times 100\% = 18,18\%$
- $KP(500) = \frac{22 \text{ mL} - 17 \text{ mL}}{22 \text{ mL}} \times 100\% = 22,72\%$

8) Perbandingan Haussner

$$\text{Angka Haussner (n)} = \frac{\text{BJ setelah pemampatan}}{\text{BJ sebelum pemampatan}}$$

- $\text{Angka haussner (10)} = \frac{0,526 \text{ g/mL}}{0,454 \text{ g/mL}} = 1,15$
- $\text{Angka haussner (100)} = \frac{0,555 \text{ g/mL}}{0,454 \text{ g/mL}} = 1,22$
- $\text{Angka haussner (500)} = \frac{0,588 \text{ g/mL}}{0,454 \text{ g/mL}} = 1,29$

9) Persen Kompresibilitas

$$\%K(n) = \frac{\text{BJ mampat} - \text{BJ nyata}}{\text{BJ mampat}} \times 100\%$$

- $\%K(10) = \frac{0,526 - 0,454}{0,526} \times 100\% = 13,68\%$
- $\%K(100) = \frac{0,555 - 0,454}{0,555} \times 100\% = 18,19\%$
- $\%K(500) = \frac{0,588 - 0,454}{0,588} \times 100\% = 22,79\%$

3. Formula 3

a. Uji Sifat Alir dan Sudut Istirahat

No	Waktu (s)	Diameter (cm)	Tinggi (cm)
1	4,41	8,5	3
2	4,33	8	2,5
3	4,93	7,5	2,8
\bar{x}	4,56	8	8,3

$$\begin{aligned} \text{Sudut Istirahat} &= \tan \alpha = \frac{2h}{D} \\ &= \frac{2 \times 8,3}{8} \\ &= 64,27^\circ \text{ (serbuk sangat kurang mengalir)} \end{aligned}$$

Persyaratan :

$\alpha = 25-30^\circ$: serbuk sangat mudah mengalir

$\alpha = 30-38^\circ$: serbuk mudah mengalir

$\alpha = \geq 38^\circ$: serbuk kurang mengalir

b. Uji Kompresibilitas

2) BJ Nyata

Syarat : 0,2-0,6 g/mL

Berat (W)	V ₀	V ₁₀	V ₁₀₀	V ₅₀₀
10 gram	20 mL	18 mL	16 mL	15,5 mL

$$P = \frac{W}{V}$$
$$= \frac{10 \text{ gram}}{20 \text{ ml}} = 0,5 \text{ g/mL}$$

10) BJ Mampat

Syarat : 0,2-0,6 g/mL

$$P_n = \frac{W}{V_n}$$

- $P_{10} = \frac{10 \text{ gram}}{18 \text{ ml}} = 0,555 \text{ g/mL}$
- $P_{100} = \frac{10 \text{ gram}}{16 \text{ ml}} = 0,625 \text{ g/mL}$
- $P_{500} = \frac{10 \text{ gram}}{15,5 \text{ ml}} = 0,645 \text{ g/mL}$

11) Kadar Pemampatan

$$KP(n) = \frac{V_0 - V(n)}{V_0} \times 100\%$$

- $KP(10) = \frac{20 \text{ ml} - 18 \text{ ml}}{20 \text{ ml}} \times 100\% = 10\%$
- $KP(100) = \frac{20 \text{ ml} - 16 \text{ ml}}{20 \text{ ml}} \times 100\% = 20\%$
- $KP(500) = \frac{20 \text{ ml} - 15,5 \text{ ml}}{20 \text{ ml}} \times 100\% = 22,5\%$

12) Perbandingan Haussner

$$\text{Angka Haussner (n)} = \frac{\text{BJ setelah pemampatan}}{\text{BJ sebelum pemampatan}}$$

- $\text{Angka haussner (10)} = \frac{0,555 \text{ g/ml}}{0,5 \text{ g/ml}} = 1,11$
- $\text{Angka haussner (100)} = \frac{0,625 \text{ g/ml}}{0,5 \text{ g/ml}} = 1,25$

- Angka haussner (500) = $\frac{0,645 \text{ g/ml}}{0,5 \text{ g/ml}} = 1,29$

13) Persen Kompresibilitas

$$\%K(n) = \frac{BJ \text{ mampat} - BJ \text{ nyata}}{BJ \text{ mampat}} \times 100\%$$

- $\%K(10) = \frac{0,555 - 0,5}{0,555} \times 100\% = 9,91\%$

- $\%K(100) = \frac{0,625 - 0,5}{0,625} \times 100\% = 20\%$

- $\%K(500) = \frac{0,645 - 0,5}{0,645} \times 100\% = 22,48\%$

4. Formula 4

a. Uji Sifat Alir dan Sudut Istirahat

No	Waktu (s)	Diameter (cm)	Tinggi (cm)
1	3,90	11	2,4
2	3,69	12	2,5
3	3,29	10	2,5
\bar{x}	3,63	11	2,5

$$\begin{aligned} \text{Sudut Istirahat} &= \tan \alpha = \frac{2h}{D} \\ &= \frac{2 \times 2,5}{11} \\ &= 24,44^\circ \text{ (serbuk sangat mudah mengalir)} \end{aligned}$$

Persyaratan :

$\alpha = 25-30^\circ$: serbuk sangat mudah mengalir

$\alpha = 30-38^\circ$: serbuk mudah mengalir

$\alpha = \geq 38^\circ$: serbuk kurang mengalir

b. Uji Kompresibilitas

3) BJ Nyata

Syarat : 0,2-0,6 g/mL

Berat (W)	V ₀	V ₁₀	V ₁₀₀	V ₅₀₀
10 gram	17 mL	16 mL	15 mL	14 mL

$$P = \frac{W}{V}$$
$$= \frac{10 \text{ gram}}{17 \text{ mm}} = 0,588 \text{ g/mL}$$

14) BJ Mampat

Syarat : 0,2-0,6 g/mL

$$P_n = \frac{W}{V_n}$$

- $P_{10} = \frac{10 \text{ gram}}{16 \text{ ml}} = 0,625 \text{ g/mL}$
- $P_{100} = \frac{10 \text{ gram}}{15 \text{ ml}} = 0,667 \text{ g/mL}$
- $P_{500} = \frac{10 \text{ gram}}{14 \text{ ml}} = 0,714 \text{ g/mL}$

15) Kadar Pemampatan

$$KP(n) = \frac{V_0 - V(n)}{V_0} \times 100\%$$

- $KP(10) = \frac{17 \text{ ml} - 16 \text{ ml}}{17 \text{ ml}} \times 100\% = 5,88 \%$
- $KP(100) = \frac{17 \text{ ml} - 15 \text{ ml}}{17 \text{ ml}} \times 100\% = 11,76 \%$
- $KP(500) = \frac{17 \text{ ml} - 14 \text{ ml}}{17 \text{ ml}} \times 100\% = 17,64 \%$

16) Perbandingan Haussner

$$\text{Angka Haussner (n)} = \frac{\text{BJ setelah pemampatan}}{\text{BJ sebelum pemampatan}}$$

- $\text{Angka haussner (10)} = \frac{0,625 \text{ g/ml}}{0,588 \text{ g/ml}} = 1,06$
- $\text{Angka haussner (100)} = \frac{0,675 \text{ g/ml}}{0,588 \text{ g/ml}} = 1,14$
- $\text{Angka haussner (500)} = \frac{0,714 \text{ g/ml}}{0,588 \text{ g/ml}} = 1,21$

17) Persen Kompresibilitas

$$\%K(n) = \frac{\text{BJ mampat} - \text{BJ nyata}}{\text{BJ mampat}} \times 100\%$$

- $\%K(10) = \frac{0,625 - 0,588}{0,625} \times 100\% = 5,92\%$
- $\%K(100) = \frac{0,675 - 0,588}{0,675} \times 100\% = 12,89\%$
- $\%K(500) = \frac{0,714 - 0,588}{0,714} \times 100\% = 17,64\%$

LAMPIRAN 3 EVALUASI TABLET

1. Uji Organoleptik

Formula	Parameter		
	Bentuk	Warna	Bau
1.	Bulat, permukaan rata	Putih kekuningan	Tidak berbau
2.	Bulat, permukaan rata	Putih kekuningan	Tidak berbau
3.	Bulat, permukaan rata	Putih kekuningan	Tidak berbau
4.	Bulat, permukaan rata	Putih kekuningan	Tidak berbau

2. Uji Keseragaman Bobot

No	Formula 1		Formula 2		Formula 3		Formula 4	
	Berat (mg)	SD (%)	Berat (mg)	SD (%)	Berat (mg)	SD (%)	Berat (mg)	SD (%)
1.	240	1,694	280	1,083	280	1,449	330	1,049
2.	240	1,694	280	1,083	280	1,449	330	1,049
3.	240	1,694	270	2,527	270	2,173	340	1,949
4.	240	1,694	280	1,083	270	2,173	330	1,049
5.	230	2,542	280	1,083	280	1,449	330	1,049
6.	240	1,694	270	2,527	280	1,449	340	1,949
7.	240	1,694	270	2,527	270	2,173	340	1,949
8.	230	2,542	280	1,083	280	1,449	340	1,949
9.	240	1,694	270	2,527	270	2,173	330	1,049
10.	240	1,694	280	1,083	280	1,449	340	1,949
11.	230	2,542	280	1,083	280	1,449	330	1,049
12.	240	1,694	280	1,083	280	1,449	330	1,049
13.	230	2,542	270	2,527	280	1,449	330	1,049
14.	240	1,694	280	1,083	280	1,449	340	1,949
15.	240	1,694	280	1,083	280	1,449	330	1,049
16.	240	1,694	280	1,083	280	1,449	330	1,049
17.	230	2,542	270	2,527	270	2,173	330	1,049
18.	230	2,542	280	1,083	270	2,173	330	1,049
19.	230	2,542	280	1,083	270	2,173	330	1,049
20.	230	2,542	280	1,083	270	2,173	340	1,949
\bar{x}	236		277		276		333,5	
SD	5.02		4.70		5.02		4.89	

Formula 1

- Kolom A = 7,5%

$$= \frac{7,5}{100} \times 236 = 17,7$$

Batas atas : $236 + 17,7 = 253,7$

Batas bawah : $236 - 17,7 = 218,3$

- Kolom B = 15%

$$= \frac{15}{100} \times 236 = 35,4$$

$$\text{Batas atas : } 236 + 35,4 = 271,4$$

$$\text{Batas bawah : } 236 - 35,4 = 200,6$$

- Perhitungan bobot penyimpangan

$$\frac{\text{Bobot } \bar{x} - \text{Bobot tablet}}{\text{Bobot } \bar{x}} \times 100\%$$

- 1) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 2) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 3) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 4) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 5) $\frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$
- 6) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 7) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 8) $\frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$
- 9) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 10) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 11) $\frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$
- 12) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 13) $\frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$
- 14) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$
- 15) $\frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$

$$16) \frac{236 \text{ mg} - 240 \text{ mg}}{236 \text{ mg}} \times 100\% = 1,694 \%$$

$$17) \frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$$

$$18) \frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$$

$$19) \frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$$

$$20) \frac{236 \text{ mg} - 230 \text{ mg}}{236 \text{ mg}} \times 100\% = 2,542 \%$$

Formula 2

- Kolom A = 7,5%

$$= \frac{7,5}{100} \times 277 = 20,77$$

$$\text{Batas atas} : 277 + 20,77 = 297,7$$

$$\text{Batas bawah} : 277 - 20,77 = 256,3$$

- Kolom B = 15%

$$= \frac{15}{100} \times 277 = 41,55$$

$$\text{Batas atas} : 277 + 41,55 = 318,55$$

$$\text{Batas bawah} : 277 - 41,55 = 235,45$$

- Perhitungan bobot penyimpangan

$$\frac{\text{Bobot } \bar{x} - \text{Bobot tablet}}{\text{Bobot } \bar{x}} \times 100\%$$

$$1) \frac{277 \text{ mg} - 280 \text{ mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$$

$$2) \frac{277 \text{ mg} - 280 \text{ mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$$

$$3) \frac{277 \text{ mg} - 270 \text{ mg}}{277 \text{ mg}} \times 100\% = 2,527 \%$$

$$4) \frac{277 \text{ mg} - 280 \text{ mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$$

- 5) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 6) $\frac{277 \text{ mg}-270 \text{ mg}}{277 \text{ mg}} \times 100\% = 2,527 \%$
- 7) $\frac{277 \text{ mg}-270 \text{ mg}}{277 \text{ mg}} \times 100\% = 2,527 \%$
- 8) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 9) $\frac{277 \text{ mg}-270 \text{ mg}}{277 \text{ mg}} \times 100\% = 2,527 \%$
- 10) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 11) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 12) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 13) $\frac{277 \text{ mg}-270 \text{ mg}}{277 \text{ mg}} \times 100\% = 2,527 \%$
- 14) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 15) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 16) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 17) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 18) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 19) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$
- 20) $\frac{277 \text{ mg}-280\text{mg}}{277 \text{ mg}} \times 100\% = 1,083 \%$

Formula 3

- Kolom A $= 7,5\%$
 $= \frac{7,5}{100} \times 276 = 20,7$

Batas atas : $276 + 20,7 = 296,7$

Batas bawah : $276 - 20,7 = 255,3$

- Kolom B = 15%

$$= \frac{15}{100} \times 276 = 41,4$$

Batas atas : $276 + 41,4 = 317,4$

Batas bawah : $276 - 41,4 = 234,6$

- Perhitungan bobot penyimpangan

$$\frac{\text{Bobot } \bar{x} - \text{Bobot tablet}}{\text{Bobot } \bar{x}} \times 100\%$$

1) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

2) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

3) $\frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$

4) $\frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$

5) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

6) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

7) $\frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$

8) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

9) $\frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$

10) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

11) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

12) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

13) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

14) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

15) $\frac{276 \text{ mg} - 280 \text{ mg}}{276 \text{ mg}} \times 100\% = 1,449 \%$

$$16) \frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$$

$$17) \frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$$

$$18) \frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$$

$$19) \frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$$

$$20) \frac{276 \text{ mg} - 270 \text{ mg}}{276 \text{ mg}} \times 100\% = 2,173 \%$$

Formula 4

- Kolom A = 5%

$$= \frac{5}{100} \times 333,5 = 16,68$$

$$\text{Batas atas} : 333,5 + 16,68 = 350,18$$

$$\text{Batas bawah} : 333,5 - 16,68 = 316,82$$

- Kolom B = 10%

$$= \frac{10}{100} \times 333,5 = 33,35$$

$$\text{Batas atas} : 333,5 + 33,35 = 366,85$$

$$\text{Batas bawah} : 333,5 - 33,35 = 300,15$$

- Perhitungan bobot penyimpangan

$$\frac{\text{Bobot } \bar{x} - \text{Bobot tablet}}{\text{Bobot } \bar{x}} \times 100\%$$

$$1) \frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$$

$$2) \frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$$

$$3) \frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$$

$$4) \frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$$

- 5) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 6) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 7) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 8) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 9) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 10) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 11) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 12) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 13) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 14) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 15) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 16) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 17) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 18) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$
- 19) $\frac{333,5 \text{ mg} - 330 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,049 \%$
- 20) $\frac{333,5 \text{ mg} - 340 \text{ mg}}{333,5 \text{ mg}} \times 100\% = 1,949 \%$

3. Uji Keseragaman Ukuran

a. Formula 1

No.	Diameter (mm)	Tebal (mm)	3 x Tebal (mm)	1 1/3 Tebal (mm)
1.	8,25	3,35	10,05	4,355
2.	8,25	3,45	10,35	4,358
3.	8,25	3,35	10,05	4,355
4.	8,25	3,35	10,05	4,355
5.	8,25	3,35	10,05	4,355
6.	8,25	3,35	10,05	4,355
7.	8,25	3,45	10,35	4,358
8.	8,25	3,25	9,75	4,322
9.	8,25	3,35	10,05	4,355
10.	8,25	3,35	10,05	4,355
11.	8,25	3,45	10,35	4,358
12.	8,15	3,35	10,05	4,355
13.	8,15	3,45	10,35	4,358
14.	8,25	3,35	10,05	4,355
15.	8,15	3,45	10,35	4,358
16.	8,15	3,35	10,35	4,355

17.	8,25	3,35	10,05	4,355
18.	8,25	3,25	9,75	4,322
19.	8,25	3,35	10,05	4,355
20.	8,25	3,35	10,05	4,355
\bar{x}	8,23	3,365	10,11	4,352

b. Formula 2

No.	Diameter (mm)	Tebal (mm)	3 x Tebal (mm)	1 1/3 Tebal (mm)
1.	8,15	4,95	14,85	6,435
2.	8,15	4,85	14,55	6,435
3.	8,25	4,45	13,35	5,918
4.	8,35	4,95	14,85	6,435
5.	8,25	4,45	13,35	5,918
6.	8,15	4,45	13,35	5,918
7.	8,25	4,95	14,85	6,435
8.	8,45	4,45	13,35	5,918
9.	8,25	4,45	13,35	5,918
10.	8,25	4,95	14,85	6,435
11.	8,25	4,45	13,35	5,918
12.	8,25	4,95	14,85	6,435
13.	8,25	4,95	14,85	6,435

14.	8,25	4,95	14,85	6,435
15.	8,25	4,95	14,85	6,435
16.	8,25	4,45	13,35	5,918
17.	8,25	4,95	14,85	6,435
18.	8,25	4,95	14,85	6,435
19.	8,25	4,45	13,35	5,918
20.	8,25	4,85	14,55	6,450
\bar{x}	8,25	4,74	14,22	6,228

c. Formula 3

No.	Diameter (mm)	Tebal (mm)	3 x Tebal (mm)	1 1/3 Tebal (mm)
1.	8,25	4,95	14,85	6,435
2.	8,25	4,45	13,35	5,85
3.	8,25	4,95	14,85	6,435
4.	8,25	4,85	14,55	6,035
5.	8,25	4,25	12,75	5,525
6.	8,25	4,95	14,85	6,435
7.	8,25	4,25	12,75	5,525
8.	8,25	4,95	14,85	6,435
9.	8,15	4,95	14,85	6,435
10.	8,15	4,25	12,75	5,525

11.	8,15	4,95	14,85	6,435
12.	8,25	4,85	14,55	6,035
13.	8,25	4,95	14,85	6,435
14.	8,25	4,25	12,75	5,525
15.	8,25	4,95	14,85	6,435
16.	8,25	4,95	14,85	6,435
17.	8,25	4,85	14,55	6,035
18.	8,25	4,25	12,75	5,525
19.	8,25	4,85	14,55	6,035
20.	8,25	4,25	12,75	5,525
\bar{x}	8,23	4,695	14,08	6,052

d. Formula 4

No.	Diameter (mm)	Tebal (mm)	3 x Tebal (mm)	1 1/3 Tebal (mm)
1.	8,25	4,15	12,45	5,395
2.	8,25	4,15	12,45	5,395
3.	8,25	4,15	12,45	5,395
4.	8,25	4,15	12,45	5,395
5.	8,25	4,95	14,85	6,583
6.	8,25	4,15	12,45	5,395
7.	8,25	4,15	12,45	5,395
8.	8,25	4,15	12,45	5,395

9.	8,25	4,15	12,45	5,395
10.	8,25	4,75	14,25	6,317
11.	8,25	4,65	13,95	6,184
12.	8,25	4,15	12,45	5,395
13.	8,25	4,15	12,45	5,395
14.	8,25	4,15	12,45	5,395
15.	8,25	4,85	14,55	6,450
16.	8,25	4,15	12,45	5,395
17.	8,25	4,15	12,45	5,395
18.	8,25	4,15	12,45	5,395
19.	8,25	4,15	12,45	5,395
20.	8,25	4,15	12,45	5,395
\bar{x}	8,25	4,28	12,84	5,592

4. Uji Kekerasan

No.	Formula 1 (kg)	Formula 2 (kg)	Formula 3 (kg)	Formula 4 (kg)
1.	6,14	7,88	6,47	5,22
2.	7,97	7,12	9,39	5,02
3.	6,68	6,30	7,25	4,71
4.	6,80	5,54	7,48	5,09
5.	6,59	5,96	8,05	5,31
6.	7,43	5,03	6,52	6,36

7.	6,52	7,44	9,44	4,31
8.	7,30	5,21	4,72	5,14
9.	6,60	5,25	7,63	6,30
10.	6,93	5,46	7,31	5,71
11.	6,69	5,84	9,80	6,16
12.	5,71	7,48	6,54	5,54
13.	5,88	5,11	5,44	5,25
14.	5,56	5,92	6,86	7,48
15.	6,16	5,12	4,31	6,14
16.	7,52	8,82	5,45	7,31
17.	6,36	8,72	4,84	5,12
18.	7,65	7,58	5,44	5,44
19.	5,54	5,58	4,64	7,25
20.	5,21	7,43	5,96	6,86
10	6,562	6,4395	6,677	5,786
SD	0.762831	1.247711	1.639496	0.907178

5. Uji Kerapuhan

Formula	W0 (gram)	W1 (gram)	Friability (%)
1	2,7155	2,6926	0,8433
2	3,4238	3,4023	0,6279
3	3,3331	3,3146	0,5550
4	4,0185	3,9908	0,6893

a. Formula 1

$$W_0 = 2,7155$$

$$W_1 = 2,6926$$

$$F = \frac{W_0 - W_1}{W_0} 100\%$$

$$= \frac{2,7155 - 2,6926}{2,7155} \times 100\% = 0,843\%$$

b. Formula 2

$$W_0 = 3,4238$$

$$W_1 = 3,4023$$

$$F = \frac{W_0 - W_1}{W_0} 100\%$$

$$= \frac{3,4238 - 3,4023}{3,4238} \times 100\% = 0,6279\%$$

c. Formula 3

$$W_0 = 3,3331$$

$$W_1 = 3,3146$$

$$F = \frac{W_0 - W_1}{W_0} 100\%$$

$$= \frac{3,3331 - 3,3146}{3,3331} \times 100\% = 0,5550\%$$

d. Formula 4

$$W_0 = 4,0185$$

$$W_1 = 3,9908$$

$$F = \frac{W_0 - W_1}{W_0} 100\%$$

$$= \frac{4,0185 - 3,9908}{4,0185} \times 100\% = 0,6893\%$$

6. Uji Waktu Hancur

No.	F1 (s)	F2 (s)	F3 (s)	F4 (s)
1.	28,22	2,42	3,23	1,44
2.	28,34	14,16	7,16	1,49
3.	28,46	19,50	29,48	2,21
4.	28,51	21,02	29,59	3,24
5.	29,26	21,29	32,12	3,43

6.	29,38	22,14	35,56	3,45
\bar{x}	28,69	16,75	22,85	2,54
SD	0.49	7.58	13.91	0.95

7. Uji Disolusi

Formula 1

1) menit ke-5

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,155 = 0,0888x + 0,0785$$

$$x = \frac{0,155 - 0,0785}{0,0888}$$

$$x = 0,861 \text{ ppm}$$

- mg kadar = $0,861 \times \frac{500}{1000} = 0,430 \text{ mg}$
- % kadar = $\frac{0,430 \text{ mg}}{5,86 \text{ g}} \times 100\% = 7,33\%$

2) menit ke-10

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,226 = 0,0888x + 0,0785$$

$$x = \frac{0,226 - 0,0785}{0,0888}$$

$$x = 1,66 \text{ ppm}$$

- mg kadar = $1,66 \times \frac{500}{1000} = 0,83 \text{ mg}$
- Faktor koreksi = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 0,430 \text{ mg} = 0,0043 \text{ mg}$
- Kadar terkoreksi = $0,83 \text{ mg} + 0,0043 \text{ mg} = 0,834 \text{ mg}$
- % Kadar = $\frac{0,834 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 14,23\%$

3) Menit ke-15

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,384 = 0,0888x + 0,0785$$

$$x = \frac{0,384 - 0,0785}{0,0888}$$

$$x = 3,44 \text{ ppm}$$

- $\text{mg kadar} = 3,44 \times \frac{500}{1000} = 1,72 \text{ mg}$
- $\text{Faktor koreksi menit ke-5} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,430 \text{ mg} = 0,0043 \text{ mg}$
- $\text{Faktor koreksi menit ke-10} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,83 \text{ mg} = 0,0083 \text{ mg}$
- $\text{Kadar terkoreksi} = 1,72 \text{ mg} + 0,0043 \text{ mg} + 0,0083 \text{ mg} = 1,732 \text{ mg}$
- $\% \text{ Kadar} = \frac{1,732 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 29,55\%$

4) Menit ke-30

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,842 = 0,0888x + 0,0785$$

$$x = \frac{0,842 - 0,0785}{0,0888}$$

$$x = 8,59 \text{ ppm}$$

- $\text{mg kadar} = 8,59 \times \frac{500}{1000} = 4,295 \text{ mg}$
- $\text{Faktor koreksi menit ke-5} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,430 \text{ mg} = 0,0043 \text{ mg}$
- $\text{Faktor koreksi menit ke-10} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,83 \text{ mg} = 0,0083 \text{ mg}$
- $\text{Faktor koreksi menit ke-15} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 1,72 \text{ mg} = 0,0172 \text{ mg}$
- $\text{Kadar terkoreksi} = 4,295 \text{ mg} + 0,0043 \text{ mg} + 0,0083 \text{ mg} + 0,0172 \text{ mg} = 4,324 \text{ mg}$
- $\% \text{ Kadar} = \frac{4,324 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 73,78\%$

5) Menit ke-45

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,708 = 0,0888x + 0,0785$$

$$x = \frac{0,708 - 0,0785}{0,0888}$$

$$x = 7,08 \text{ ppm}$$

- $\text{mg kadar} = 7,08 \times \frac{500}{1000} = 3,54 \text{ mg}$
- $\text{Faktor pengenceran} = 3,54 \text{ mg} \times 2 = 7,08 \text{ mg}$
- $\text{Faktor koreksi menit ke-5} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,430 \text{ mg} = 0,0043 \text{ mg}$
- $\text{Faktor koreksi menit ke-10} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 0,83 \text{ mg} = 0,0083 \text{ mg}$
- $\text{Faktor koreksi menit ke-15} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 1,72 \text{ mg} = 0,0172 \text{ mg}$
- $\text{Faktor koreksi menit ke-30} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 4,295 \text{ mg} = 0,0429 \text{ mg}$
- $\text{Kadar terkoreksi} = 7,08 \text{ mg} + 0,0043 \text{ mg} + 0,0083 \text{ mg} + 0,0172 \text{ mg} + 0,0429 \text{ mg} = 7,152 \text{ mg}$
- $\% \text{ Kadar} = \frac{7,152 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 112,04\%$

Formula 2

1) Menit ke-5

$$y = bx + a$$

$$0,479 = 0,0888x + 0,0785$$

$$x = \frac{0,479 - 0,0785}{0,0888}$$

$$x = 4,51 \text{ ppm}$$

- $\text{mg kadar} = 4,51 \times \frac{500}{1000} = 2,255 \text{ mg}$
- $\% \text{ Kadar} = \frac{2,255 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 38,48\%$

2) Menit ke-10

$$y = bx + a$$

$$0,512 = 0,0888x + 0,0785$$

$$x = \frac{0,512 - 0,0785}{0,0888}$$

$$x = 4,88 \text{ ppm}$$

- $\text{mg kadar} = 4,88 \times \frac{500}{1000} = 2,44 \text{ mg}$

- Faktor koreksi = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,255 \text{ mg} = 0,0225 \text{ mg}$
- Kadar terkoreksi = $2,44 \text{ mg} + 0,0225 \text{ mg} = 2,462 \text{ mg}$
- % Kadar = $\frac{2,462 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 42,01\%$

3) Menit ke-15

$$y = bx + a$$

$$0,879 = 0,0888x + 0,0785$$

$$x = \frac{0,879 - 0,0785}{0,0888}$$

$$x = 9,01 \text{ ppm}$$

- mg kadar = $9,01 \times \frac{500}{1000} = 4,505 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,255 \text{ mg} = 0,0225 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,44 \text{ mg} = 0,0244 \text{ mg}$
- Kadar terkoreksi = $4,505 \text{ mg} + 0,0225 \text{ mg} + 0,0244 \text{ mg} = 4,551 \text{ mg}$
- % Kadar = $\frac{4,551 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 77,66\%$

4) Menit ke-30

$$y = bx + a$$

$$0,690 = 0,0888x + 0,0785$$

$$x = \frac{0,690 - 0,0785}{0,0888}$$

$$x = 6,88 \text{ ppm}$$

- mg kadar = $6,88 \times \frac{500}{1000} = 3,44 \text{ mg}$
- Faktor pengenceran = $3,44 \text{ mg} \times 2 = 6,88 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,255 \text{ mg} = 0,0225 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,44 \text{ mg} = 0,0244 \text{ mg}$
- Faktor koreksi menit ke-15 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 4,505 \text{ mg} = 0,0450 \text{ mg}$
- Kadar terkoreksi = $6,88 \text{ mg} + 0,0225 \text{ mg} + 0,0244 \text{ mg} + 0,0450 \text{ mg} = 6,971 \text{ mg}$

- $\% \text{ Kadar} = \frac{6,971 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 118,95\%$

5) Menit ke-45

$$y = bx + a$$

$$0,777 = 0,0888x + 0,0785$$

$$x = \frac{0,777 - 0,0785}{0,0888}$$

$$x = 7,86 \text{ ppm}$$

- $\text{mg kadar} = 7,86 \times \frac{500}{1000} = 3,93 \text{ mg}$
- $\text{Faktor pengenceran} = 3,93 \text{ mg} \times 2 = 7,86 \text{ mg}$
- $\text{Faktor koreksi menit ke-5} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 2,255 \text{ mg} = 0,0225 \text{ mg}$
- $\text{Faktor koreksi menit ke-10} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 2,44 \text{ mg} = 0,0244 \text{ mg}$
- $\text{Faktor koreksi menit ke-15} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 4,505 \text{ mg} = 0,0450 \text{ mg}$
- $\text{Faktor koreksi menit ke-30} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 6,88 \text{ mg} = 0,0688 \text{ mg}$
- $\text{Kadar terkoreksi} = 7,86 \text{ mg} + 0,0225 \text{ mg} + 0,0244 \text{ mg} + 0,0450 \text{ mg} + 0,0688 \text{ mg} = 8,020 \text{ mg}$
- $\% \text{ Kadar} = \frac{8,020 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 136,86\%$

Formula 3

1) Menit ke-5

$$y = bx + a$$

$$0,51 = 0,0888x + 0,0785$$

$$x = \frac{0,51 - 0,0785}{0,0888}$$

$$x = 4,85 \text{ ppm}$$

- $\text{mg kadar} = 4,85 \times \frac{500}{1000} = 2,425 \text{ mg}$
- $\% \text{ Kadar} = \frac{2,425 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 41,38\%$

2) Menit ke-10

$$y = bx + a$$

$$0,621 = 0,0888x + 0,0785$$

$$x = \frac{0,621 - 0,0785}{0,0888}$$

$$x = 6,10 \text{ ppm}$$

- mg kadar = $6,10 \times \frac{500}{1000} = 3,05 \text{ mg}$
- Faktor koreksi = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,425 \text{ mg} = 0,0242 \text{ mg}$
- Kadar terkoreksi = $3,05 \text{ mg} + 0,0242 \text{ mg} = 3,074 \text{ mg}$
- % Kadar = $\frac{3,074 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 52,45\%$

3) Menit ke-15

$$y = bx + a$$

$$0,765 = 0,0888x + 0,0785$$

$$x = \frac{0,765 - 0,0785}{0,0888}$$

$$x = 7,73 \text{ ppm}$$

- mg kadar = $7,73 \times \frac{500}{1000} = 3,865 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,425 \text{ mg} = 0,0242 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,05 \text{ mg} = 0,0305 \text{ mg}$
- Kadar terkoreksi = $3,865 \text{ mg} + 0,0242 \text{ mg} + 0,0305 \text{ mg} = 3,919 \text{ mg}$
- % Kadar = $\frac{3,919 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 66,87\%$

4) Menit ke-30

$$y = bx + a$$

$$0,688 = 0,0888x + 0,0785$$

$$x = \frac{0,688 - 0,0785}{0,0888}$$

$$x = 6,86 \text{ ppm}$$

- mg kadar = $6,86 \times \frac{500}{1000} = 3,43 \text{ mg}$
- Faktor pengenceran = $3,43 \text{ mg} \times 2 = 6,86 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,425 \text{ mg} = 0,0242 \text{ mg}$

- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,05 \text{ mg} = 0,0305 \text{ mg}$
- Faktor koreksi menit ke-15 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,865 \text{ mg} = 0,0386 \text{ mg}$
- Kadar terkoreksi = $6,86 \text{ mg} + 0,0242 \text{ mg} + 0,0305 \text{ mg} + 0,0386 \text{ mg} = 6,953 \text{ mg}$
- % Kadar = $\frac{6,953 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 118,65\%$

5) Menit ke-45

$$y = bx + a$$

$$0,850 = 0,0888x + 0,0785$$

$$x = \frac{0,850 - 0,0785}{0,0888}$$

$$x = 8,68 \text{ ppm}$$

- mg kadar = $8,68 \times \frac{500}{1000} = 4,34 \text{ mg}$
- Faktor pengenceran = $4,34 \text{ mg} \times 2 = 8,68 \text{ mg}$
- faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 2,425 \text{ mg} = 0,0242 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,05 \text{ mg} = 0,0305 \text{ mg}$
- Faktor koreksi menit ke-15 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,865 \text{ mg} = 0,0386 \text{ mg}$
- Faktor koreksi menit ke-30 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 6,86 \text{ mg} = 0,0686 \text{ mg}$
- Kadar terkoreksi = $8,68 \text{ mg} + 0,0242 \text{ mg} + 0,0305 \text{ mg} + 0,0386 \text{ mg} + 0,0686 \text{ mg} = 8,841 \text{ mg}$
- % Kadar = $\frac{8,841 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 150,87\%$

Formula 4

1) Menit ke-5

$$y = bx + a$$

$$0,711 = 0,0888x + 0,0785$$

$$x = \frac{0,711 - 0,0785}{0,0888}$$

$$x = 7,12 \text{ ppm}$$

- $\text{mg kadar} = 7,12 \times \frac{500}{1000} = 3,56 \text{ mg}$
- $\% \text{ Kadar} = \frac{3,56 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 60,75\%$

2) Menit ke-10

$$y = bx + a$$

$$0,873 = 0,0888x + 0,0785$$

$$x = \frac{0,873 - 0,0785}{0,0888}$$

$$x = 8,94 \text{ ppm}$$

- $\text{mg kadar} = 8,94 \times \frac{500}{1000} = 4,47 \text{ mg}$
- $\text{Faktor koreksi} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 3,56 \text{ mg} = 0,0356 \text{ mg}$
- $\text{Kadar terkoreksi} = 4,47 \text{ mg} + 0,0356 \text{ mg} = 4,505 \text{ mg}$
- $\% \text{ Kadar} = \frac{4,505 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 76,87\%$

3) Menit ke-15

$$y = bx + a$$

$$0,541 = 0,0888x + 0,0785$$

$$x = \frac{0,541 - 0,0785}{0,0888}$$

$$x = 5,20 \text{ ppm}$$

- $\text{mg kadar} = 5,20 \times \frac{500}{1000} = 2,6 \text{ mg}$
- $\text{Faktor pengenceran} = 2,6 \text{ mg} \times 2,5 = 6,5 \text{ mg}$
- $\text{Faktor koreksi menit ke-5} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 3,56 \text{ mg} = 0,0356 \text{ mg}$
- $\text{Faktor koreksi menit ke-10} = \frac{5 \text{ ml}}{500 \text{ ml}} \times 4,47 \text{ mg} = 0,0447 \text{ mg}$
- $\text{Kadar terkoreksi} = 6,5 \text{ mg} + 0,0356 \text{ mg} + 0,0447 \text{ mg} = 6,580 \text{ mg}$
- $\% \text{ Kadar} = \frac{6,580 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 112,28\%$

4) Menit ke-30

$$y = bx + a$$

$$0,428 = 0,0888x + 0,0785$$

$$x = \frac{0,428 - 0,0785}{0,0888}$$

$$x = 3,93 \text{ ppm}$$

- mg kadar = $3,93 \times \frac{500}{1000} = 1,96 \text{ mg}$
- Faktor pengenceran = $1,96 \text{ mg} \times 2 = 3,92 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,56 \text{ mg} = 0,0356 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 4,47 \text{ mg} = 0,0447 \text{ mg}$
- Faktor koreksi menit ke-15 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 6,5 \text{ mg} = 0,065 \text{ mg}$
- Kadar terkoreksi = $3,92 \text{ mg} + 0,0356 \text{ mg} + 0,0447 \text{ mg} + 0,065 \text{ mg} = 4,065 \text{ mg}$
- % Kadar = $\frac{4,065 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 69,36\%$

5) Menit ke-45

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,424 = 0,0888x + 0,0785$$

$$x = \frac{0,424 - 0,0785}{0,0888}$$

$$x = 3,89 \text{ ppm}$$

- mg kadar = $3,89 \times \frac{500}{1000} = 1,94 \text{ mg}$
- Faktor pengenceran = $1,94 \text{ mg} \times 2 = 3,88 \text{ mg}$
- Faktor koreksi menit ke-5 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,56 \text{ mg} = 0,0356 \text{ mg}$
- Faktor koreksi menit ke-10 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 4,47 \text{ mg} = 0,0447 \text{ mg}$
- Faktor koreksi menit ke-15 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 6,5 \text{ mg} = 0,065 \text{ mg}$
- Faktor koreksi menit ke-30 = $\frac{5 \text{ ml}}{500 \text{ ml}} \times 3,92 \text{ mg} = 0,0392 \text{ mg}$

- Kadar terkoreksi = 3,88 mg + 0,0356 mg + 0,0447 mg + 0,065 mg + 0,0392 mg = 4,064 mg
- % Kadar = $\frac{4,064 \text{ mg}}{5,86 \text{ gram}} \times 100\% = 69,35\%$

8. Uji Keseragaman Kandungan

Formula 1

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,648 = 0,0888x + 0,0785$$

$$x = \frac{0,648 - 0,0785}{0,0888}$$

$$= 6,413 \text{ ppm}$$

$$= 6,413 \text{ mg/L}$$

- Sampel di ekstrak 100 mg (50 mL)
6,413 mg/L x 0,5 L = 3,206 mg
- Faktor pengenceran = 3,206 mg x 10 = 32,06 mg
- Rata-rata bobot tablet formula 1 = 236 mg
- Kandungan dalam formula 1 = $\frac{236 \text{ mg}}{100 \text{ mg}} \times 32,06 \text{ mg}$
= 75,66 mg

Formula 2

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,439 = 0,0888x + 0,0785$$

$$x = \frac{0,439 - 0,0785}{0,0888}$$

$$= 4,059 \text{ ppm}$$

$$= 4,059 \text{ mg/L}$$

- Sampel di ekstrak 100 mg (50 mL)
4,059 mg/L x 0,5 L = 2,029 mg

- Faktor pengenceran = 2,029 mg x 10 = 20,29 mg
- Rata-rata bobot tablet formula 2 = 277 mg
- Kandungan dalam formula 2 $= \frac{277 \text{ mg}}{100 \text{ mg}} \times 20,29 \text{ mg}$
= 56,20 mg

Formula 3

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,626 = 0,0888x + 0,0785$$

$$x = \frac{0,626 - 0,0785}{0,0888}$$

$$= 6,165 \text{ ppm}$$

$$= 6,165 \text{ mg/L}$$

- Sampel di ekstrak 100 mg (50 mL)
6,165 mg/L x 0,5 L = 3,082 mg
- Faktor pengenceran = 3,082 mg x 10 = 30,82 mg
- Rata-rata bobot tablet formula 3 = 276 mg
- Kandungan dalam formula 3 $= \frac{276 \text{ mg}}{100 \text{ mg}} \times 30,82 \text{ mg}$
= 85,06 mg

Formula 4

$$y = bx + a$$

$$y = 0,0888x + 0,0785$$

$$0,351 = 0,0888x + 0,0785$$

$$x = \frac{0,351 - 0,0785}{0,0888}$$

$$= 3,068 \text{ ppm}$$

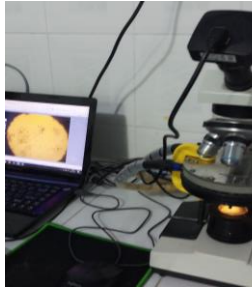
$$= 3,068 \text{ mg/L}$$

- Sampel di ekstrak 100 mg (50 mL)
3,068 mg/L x 0,5 L = 1,534 mg

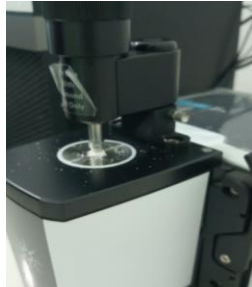
- Faktor pengenceran = $1,534 \text{ mg} \times 10 = 15,34 \text{ mg}$
- Rata-rata bobot tablet formula 4 = $333,5 \text{ mg}$
- Kandungan dalam formula 4 = $\frac{333,5 \text{ mg}}{100 \text{ mg}} \times 15,34 \text{ mg}$
= $51,15 \text{ mg}$

LAMPIRAN 4

HASIL PENELITIAN



Karakterisasi HSM



Karakterisasi FTIR



Waktu Alir



Sudut Istirahat



Kompresibilitas



Pencetakan Tablet



Keseragaman Bobot
F1



Keseragaman Bobot
F2



Keseragaman Bobot
F3



Keseragaman Bobot
F4



Keseragaman Ukuran



Kekerasan Tablet



Kerapuhan Tablet



Waktu Hancur



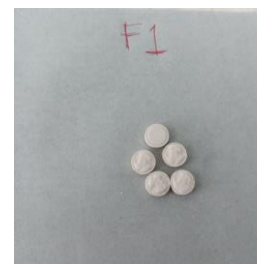
Uji Disolusi



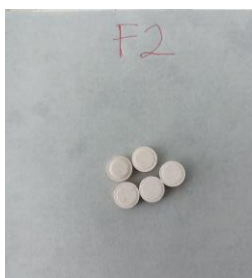
Ball Mill



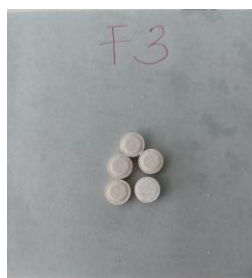
Ball Mill



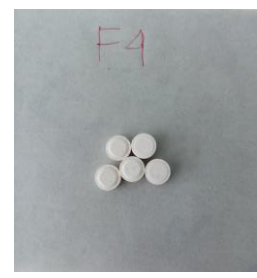
Tablet F1



Tablet F2



Tablet F3



Tablet F4