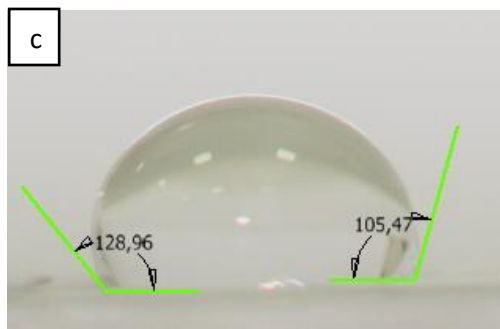
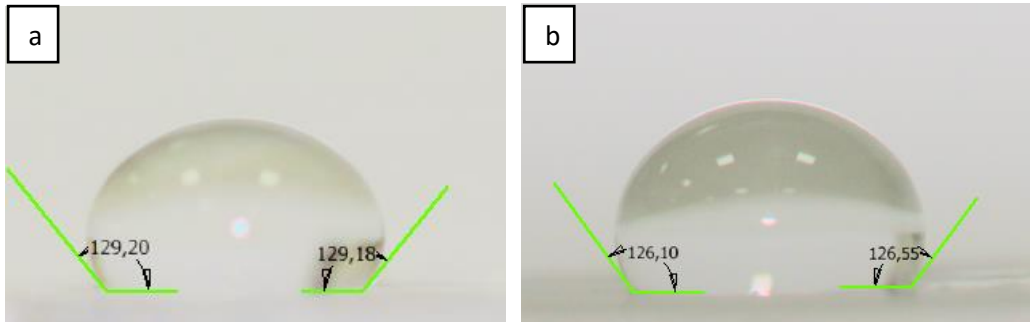
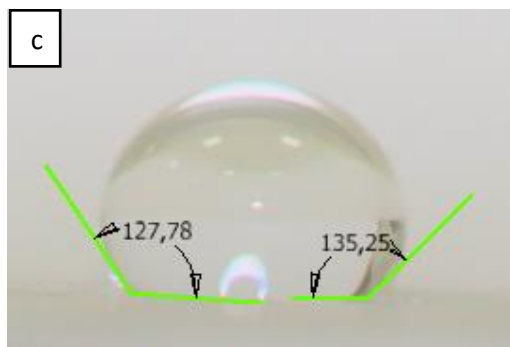
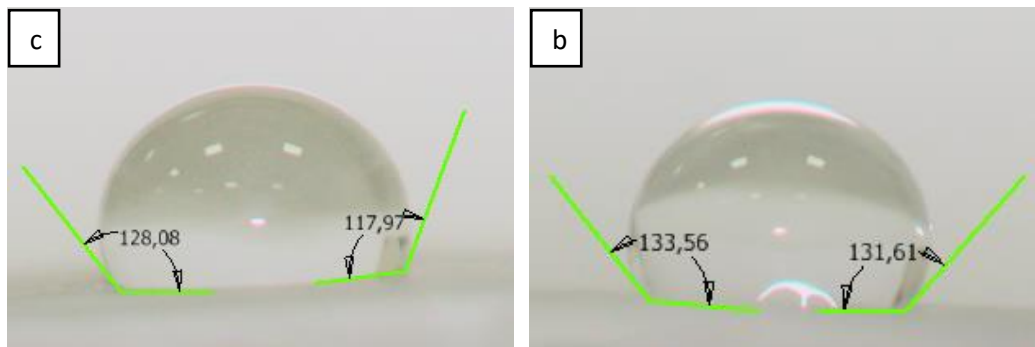


LAMPIRAN

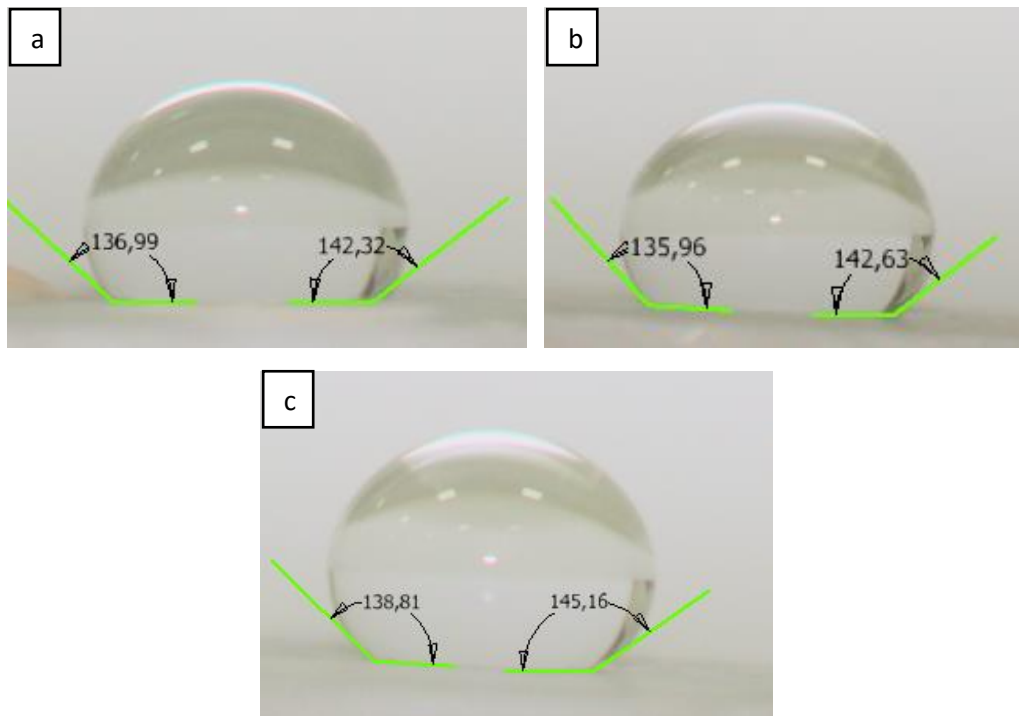
Lampiran 1. Daftar sudut kontak air yang dihasilkan



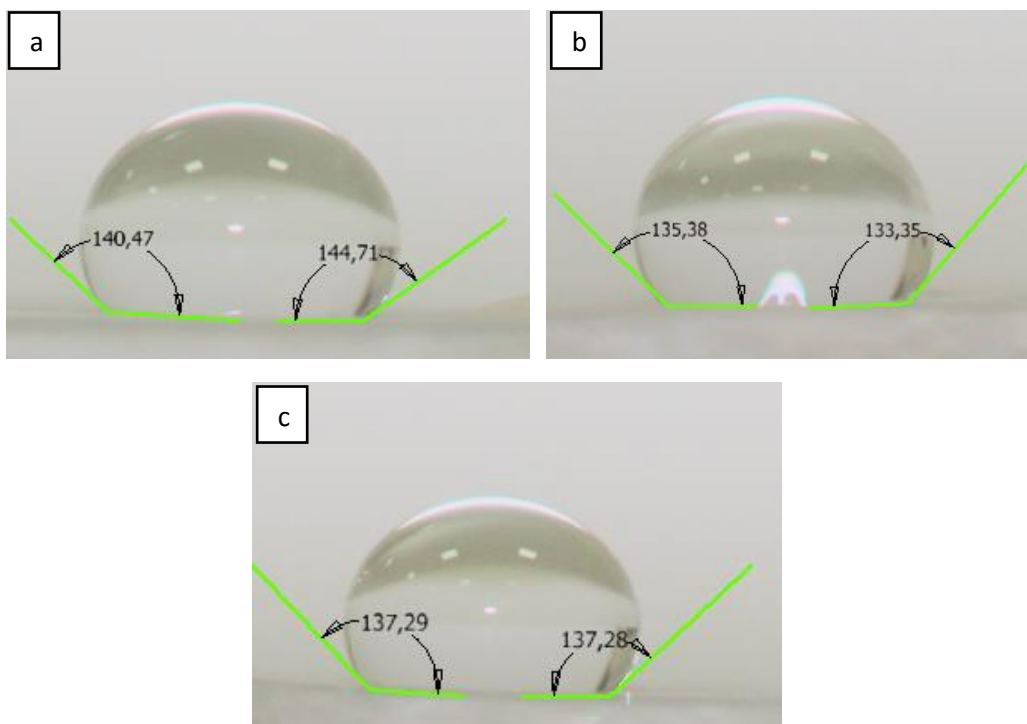
Sudut Kontak Variasi Waktu 20 jam



Sudut Kontak Variasi Waktu 25 jam



Sudut Kontak Variasi Waktu 30 jam



Sudut Kontak Variasi Waktu 35 jam

Lampiran 2. Perhitungan Sudut Kontak

- Perhitungan Sudut Kontak Air Variasi 20 jam
 - a. Sudut Kontak Air = $\frac{129,20 + 129,18}{2} = 129,19$
 - b. Sudut Kontak Air = $\frac{126,10 + 126,55}{2} = 126,32$
 - c. Sudut Kontak Air = $\frac{128,96 + 105,47}{2} = 117,21$

- Perhitungan Sudut Kontak Air Variasi 25 jam
 - a. Sudut Kontak Air = $\frac{128,08 + 117,97}{2} = 123,03$
 - b. Sudut Kontak Air = $\frac{133,56 + 131,61}{2} = 132,58$
 - c. Sudut Kontak Air = $\frac{127,78 + 135,25}{2} = 131,51$

- Perhitungan Sudut Kontak Air Variasi 30 jam
 - a. Sudut Kontak Air = $\frac{136,99 + 142,32}{2} = 139,65$
 - b. Sudut Kontak Air = $\frac{135,96 + 142,63}{2} = 139,29$
 - c. Sudut Kontak Air = $\frac{138,81 + 145,16}{2} = 141,98$

- Perhitungan Sudut Kontak Air Variasi 35 jam
 - a. Sudut Kontak Air = $\frac{140,47 + 144,71}{2} = 142,59$
 - b. Sudut Kontak Air = $\frac{135,38 + 133,35}{2} = 134,36$
 - c. Sudut Kontak Air = $\frac{137,29 + 137,28}{2} = 137,28$

Lampiran 3. Perhitungan Sudut Geser

- a. Perhitungan sudut geser pada alumunium hidrofobik variasi waktu perendaman 20 jam.

$$m.g.\sin\alpha = 0,4 \text{ gram} \times 9,81 \text{ m/s} \times \sin 17,62 = 1,18$$

m : berat alumunium

g : percepatan gravitasi

$\sin\alpha$: Sudut geser kemiringan spesimen

- b. Perhitungan sudut geser pada alumunium hidrofobik variasi waktu perendaman 25 jam

$$m.g.\sin\alpha = 0,4 \text{ gram} \times 9,81 \text{ m/s} \times \sin 17,33 = 1,16$$

m : berat alumunium

g : percepatan gravitasi

$\sin\alpha$: Sudut geser kemiringan spesimen

- c. Perhitungan sudut geser pada alumunium hidrofobik variasi waktu perendaman 30 jam

$$m.g.\sin\alpha = 0,4 \text{ gram} \times 9,81 \text{ m/s} \times \sin 8,76 = 0,59$$

m : berat alumunium

g : percepatan gravitasi

$\sin\alpha$: Sudut geser kemiringan spesimen

- d. Perhitungan sudut geser pada alumunium hidrofobik variasi waktu perendaman 35 jam

$$m.g.\sin\alpha = 0,4 \text{ gram} \times 9,81 \text{ m/s} \times \sin 8,41 = 0,57$$

m : berat alumunium

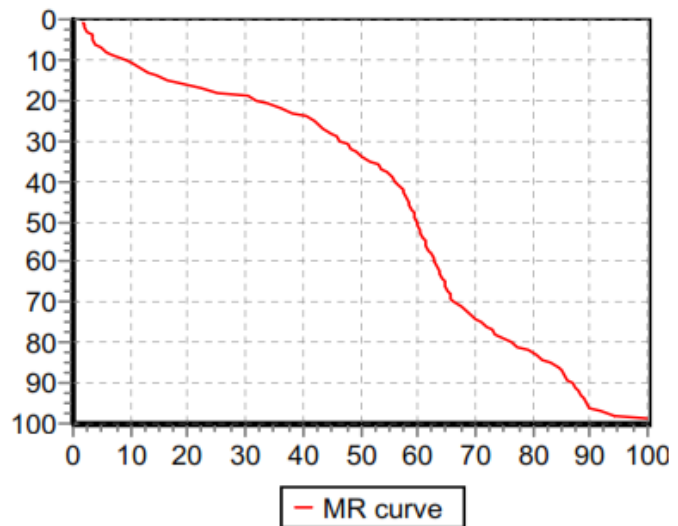
g : percepatan gravitasi

$\sin\alpha$: Sudut geser kemiringan spesimen

Lampiran 4. Tabel dan Grafik pengaruh waktu perendaman terhadap kekasaran alumunium

a. Variasi waktu perendaman 20 jam

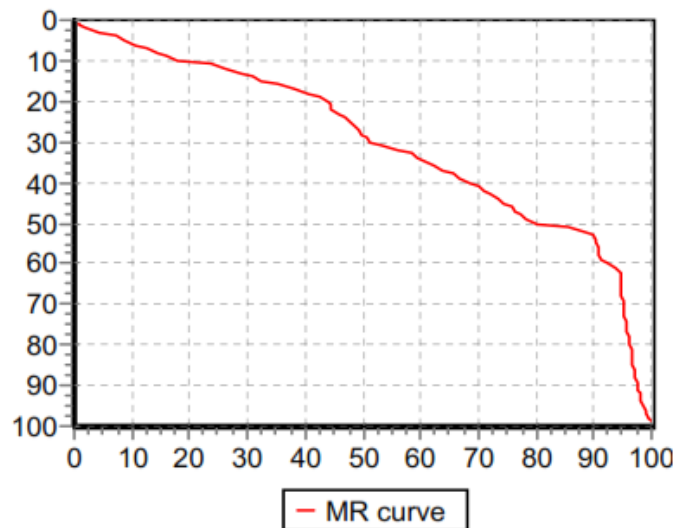
Ra	0,795 μm
R3z	0,000 μm
Rv	1,276 μm
Rp	1,351 μm
Rt	2,627 μm
Rz	2,627 μm
RS	0,034 μm
Rsk	0,065
RSm	0,125 μm
Rq	0,854 μm
RzJIS	0,951 μm
R3y	0,000 μm
Rku	1,416



Tabel dan Grafik kekasaran material pada perendaman 20 jam

b. Variasi waktu perendaman 25 jam

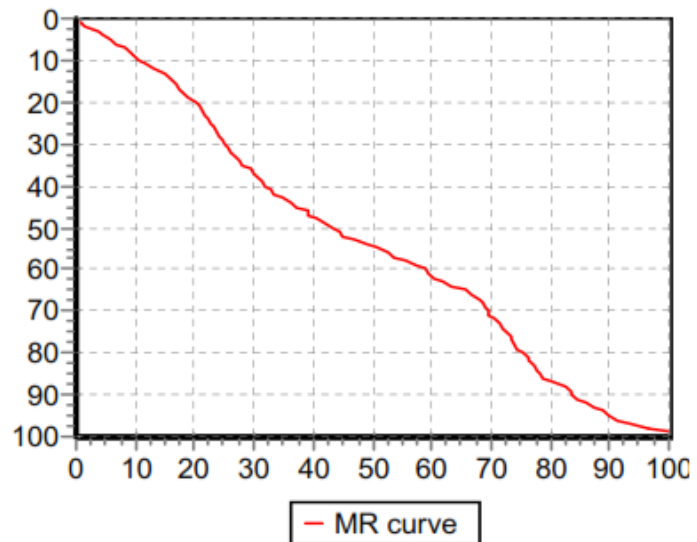
Ra	0,815 μm
R3z	1,326 μm
Rv	3,052 μm
Rp	1,476 μm
Rt	4,528 μm
Rz	4,528 μm
RS	0,021 μm
Rsk	-0,638
RSm	0,063 μm
Rq	0,986 μm
RzJIS	1,901 μm
R3y	1,326 μm
Rku	3,247



Tabel dan Grafik kekasaran material pada perendaman 25 jam

c. Variasi waktu perendaman 30 jam

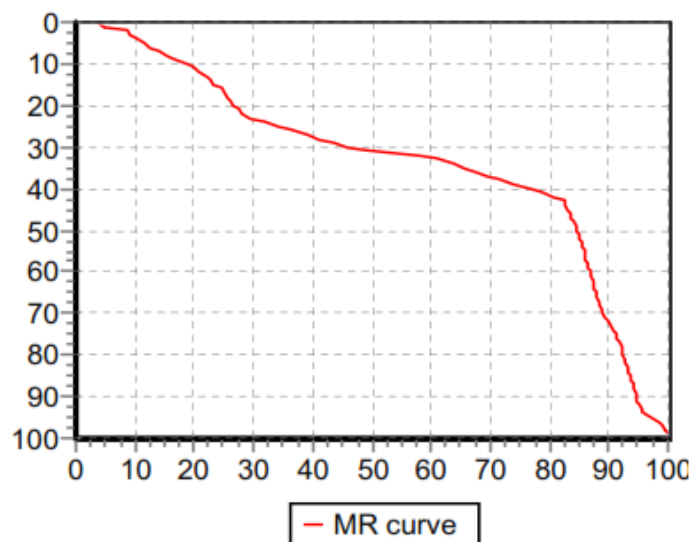
Ra	1,175 μm
R3z	1,026 μm
Rv	2,426 μm
Rp	2,051 μm
Rt	4,478 μm
Rz	4,478 μm
RS	0,079 μm
Rsk	-0,664
RSm	0,083 μm
Rq	1,389 μm
RzJIS	1,826 μm
R3y	1,026 μm
Rku	1,930



Tabel dan Grafik kekasaran material pada perendaman 30 jam

d. Variasi waktu perendaman 35 jam

Ra	1,484 μm
R3z	1,326 μm
Rv	6,204 μm
Rp	2,226 μm
Rt	8,430 μm
Rz	8,430 μm
RS	0,045 μm
Rsk	-1,746
RSm	0,125 μm
Rq	2,108 μm
RzJIS	2,376 μm
R3y	1,326 μm
Rku	4,797



Tabel dan Grafik kekasaran material pada perendaman 35 jam

Lampiran 5. Tabel dan Perhitungan VHN kekerasan

Hasil Pengujian Kekerasan Mikro Vickers (10 gf)						
Variasi Waktu Perendaman	d1	d2	d _{rata-rata}	Nilai Kekasaran VHN	VHN Rata-rata	Standar Deviasi
20 jam	88	77	82,5	2,72	3,33	1,17
	82	87	84,5	2,59		
	63	63	63	4,67		
25 jam	50	57	53,5	6,47	3,74	2,37
	93	93	93	2,14		
	83	85	84	2,62		
30 jam	77	77,5	77,25	3,1	3,94	0,73
	67	64	65,5	4,32		
	64	65,5	64,75	4,41		
35 jam	65,5	67	66,25	4,21	3,77	0,61
	78	77	77,5	3,08		
	68	67,5	67,75	4,03		

Nilai Kekerasan Vickers Dihitung Menggunakan Persamaan :

$$VHN = \frac{1,854 \times P}{d^2}$$

Keterangan :

VHN : Vickers Hardness Number

P : Beban

d : Diagonal

- Variasi waktu perendaman 20 jam

a. Titik 1 diketahui :

P : 10 (gf)

P : 10 (gf) x 10⁻³ Kgf

P : 0,01

D_{rata-rata}: 82,5µm x 10⁻³mm = 0,0825 mm

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0825)^2}$$

$$VHN = 2,72$$

b. Titik 2 diketahui :

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}}: 84,5\mu\text{m} \times 10^{-3}\text{mm} = 0,0845 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0845)^2}$$

$$VHN = 2,59$$

c. Titik 3 diketahui :

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}}: 63\mu\text{m} \times 10^{-3}\text{mm} = 0,063 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,063)^2}$$

$$VHN = 4,67$$

• Variasi waktu perendaman 25 jam

a. Titik 1 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}}: 53,5\mu\text{m} \times 10^{-3}\text{mm} = 0,0535 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0535)^2}$$

$$VHN = 6,47$$

b. Titik 2 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 93\mu\text{m} \times 10^{-3}\text{mm} = 0,093 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,093)^2}$$

$$VHN = 2,14$$

c. Titik 3 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 84\mu\text{m} \times 10^{-3}\text{mm} = 0,084 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,084)^2}$$

$$VHN = 2,62$$

• Variasi waktu perendaman 30 jam

a. Titik 1 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 77,3\mu\text{m} \times 10^{-3}\text{mm} = 0,0773 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0773)^2}$$

$$VHN = 3,1$$

b. Titik 2 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 65,5 \mu\text{m} \times 10^{-3} \text{ mm} = 0,0655 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0655)^2}$$

$$VHN = 4,32$$

c. Titik 3 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 64,8 \mu\text{m} \times 10^{-3} \text{ mm} = 0,0648 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0648)^2}$$

$$VHN = 4,41$$

• Variasi waktu perendaman 35 jam

a. Titik 1 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 66,3 \mu\text{m} \times 10^{-3} \text{ mm} = 0,0663 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0663)^2}$$

$$VHN = 4,21$$

b. Titik 3 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 77,5 \mu\text{m} \times 10^{-3} \text{ mm} = 0,0775 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0775)^2}$$

$$VHN = 3,08$$

c. Titik 3 diketahui

$$P : 10 \text{ (gf)}$$

$$P : 10 \text{ (gf)} \times 10^{-3} \text{ Kgf}$$

$$P : 0,01$$

$$D_{\text{rata-rata}} : 67,8 \mu\text{m} \times 10^{-3} \text{ mm} = 0,0678 \text{ mm}$$

$$VHN = \frac{1,854 \times P}{d^2}$$

$$VHN = \frac{1,854 \times 0,01}{(0,0678)^2}$$

$$VHN = 4,03$$