

## LAMPIRAN 1

### Perhitungan Hasil Pengujian Keausan

Rumus nilai keausan spesifik dapat diperoleh dari:

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_o \cdot l_o}$$

Dimana :  $W_s$ : Keausan Spesifik ( $\text{mm}^2/\text{kg}$ )

B: tebal *disc* (mm)

r: radius *disc* (mm)

$b_o$ : lebar keausan yang didapat dari hasil pengamatan mikroskop (mm)

$P_o$  : beban tekan (kg)

$l_o$ : jarak tempuh dari proses pengausan (mm)

Diketahui:

- B : tebal piringan = 3 mm
- r : radius piringan = 14 mm
- $P_o$  : beban tekan saat pengausan = 2,12 kg
- $l_o$  : jarak tempuh dari proses pengausan = 66600 mm

Ditanya:

- $b_o$  : Lebar keausan hasil pengamatan masing-masing variasi?
- $W_s$  : Keausan spesifik masing-masing variasi?

Jawab:

1. Raw material:

a. Lebar keausan

$$b_o = \frac{183+151+191}{3} = 175 \mu\text{m} = 0,175 \text{ mm}$$

b. Keausan spesifik

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_o \cdot l_o} = \frac{3 \cdot 0,175^3}{8 \cdot 14 \cdot 2,12 \cdot 66600} = 10,17 \times 10^{-10} \text{ mm}^2/\text{kg}$$

2. Anodizing

a. Lebar keausan

$$b_o = \frac{133+150+111}{3} = 141,33 \mu\text{m} = 0,141 \text{ mm}$$

b. Keausan spesifik

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_0 \cdot l_0} = \frac{3,0 \cdot 141^3}{8 \cdot 14,2 \cdot 12,66600} = 5,32 \times 10^{-10} \text{ mm}^2/\text{kg}$$

3. Variasi 10 gram/liter

a. Lebar keausan

$$b_o = \frac{121+154+145}{3} = 137 \mu\text{m} = 0,137 \text{ mm}$$

b. Keausan spesifik

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_0 \cdot l_0} = \frac{3,0 \cdot 137^3}{8 \cdot 14,2 \cdot 12,66600} = 4,88 \times 10^{-10} \text{ mm}^2/\text{kg}$$

4. Variasi 20 gram/liter

a. Lebar keausan

$$b_o = \frac{98,3+143+77,9}{3} = 106,4 \mu\text{m} = 0,106 \text{ mm}$$

b. Keausan spesifik

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_0 \cdot l_0} = \frac{3,0 \cdot 106^3}{8 \cdot 14,2 \cdot 12,66600} = 2,26 \times 10^{-10} \text{ mm}^2/\text{kg}$$

5. Variasi 30 gram/liter

a. Lebar keausan

$$b_o = \frac{93+125+91,5}{3} = 103,167 \mu\text{m} = 0,103 \text{ mm}$$

b. Keausan spesifik

$$W_s = \frac{B \cdot b_o^3}{8 \cdot r \cdot P_0 \cdot l_0} = \frac{3,0 \cdot 103^3}{8 \cdot 14,2 \cdot 12,66600} = 2,07 \times 10^{-10} \text{ mm}^2/\text{kg}$$