

LAMPIRAN

Perhitungan densitas pada proses *anodizing* dengan arus 1 Ampere.

Diketahui : $i = 1 \text{ A}$

$$P = 3.4 \text{ cm}$$

$$L = 2.9 \text{ cm}$$

Ditanya : $A = \text{luas permukaan specimen (dm}^2\text{)}$

$CD = \text{current density (A/dm}^2\text{)}$

Penyelesaian : $A = \frac{P \times L}{100}$

$$A = \frac{3.4 \times 2.9}{100} = 0.0986 \text{ dm}^2$$

$$CD = \frac{1}{0.0986} = 10.141 \text{ A/dm}^2$$

Perhitungan densitas pada proses *anodizing* dengan arus 2 Ampere.

Diketahui : $i = 2 \text{ A}$

$$P = 3.5 \text{ cm}$$

$$L = 2.9 \text{ cm}$$

Ditanya : $A = \text{luas permukaan specimen (dm}^2\text{)}$

$CD = \text{current density (A/dm}^2\text{)}$

Penyelesaian : $A = \frac{P \times L}{100}$

$$A = \frac{3.5 \times 2.9}{100} = 0.1015 \text{ dm}^2$$

$$CD = \frac{2}{0.1015} = 19.70 \text{ A/dm}^2$$

Perhitungan densitas pada proses *anodizing* dengan arus 3 Ampere.

Diketahui : $i = 3 \text{ A}$

$$P = 3.6 \text{ cm}$$

$$L = 3 \text{ cm}$$

Ditanya : A = luas permukaan specimen (dm^2)

CD = *current density* (A/dm^2)

Penyelesaian : $A = \frac{P \times L}{100}$

$$A = \frac{3.6 \times 3}{100} = 0.108 \text{ dm}^2$$

$$CD = \frac{3}{0.108} = 27.77 \text{ A}/\text{dm}^2$$

Perhitungan nilai kekerasan (VHN) pada posisi titik injakan acak untuk pengujian *raw material aluminium*.

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{75+75}{2} = 75 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(75^2)} = 0.06592 \cdot \mu\text{m} \times 10^3$$

$$VHN = 65.92 \text{ kg}/\text{mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{65.92 + 85.12 + 86.42}{3}$$

$$VHN = 79.15 \text{ VHN}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *anodizing* pada kuat arus 1 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{58+58}{2} = 58 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(58^2)} = 0.11022. \mu\text{m} \times 10^3$$

$$VHN = 110,22 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{110,22 + 93,42 + 103}{3}$$

$$VHN = 102,21 \text{ VHN}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *sealing* pada kuat arus 1 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{60+60}{2} = 60 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(60^2)} = 0.103. \mu\text{m} \times 10^3$$

$$VHN = 103 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{103 + 132 + 103}{3}$$

$$VHN = 112,66 \text{ VHN}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *anodizing* pada kuat arus 2 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{73+72}{2} = 72.5 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(72.5^2)} = 0.07054 \cdot \mu\text{m} \times 10^3$$

$$VHN = 70.54 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{70,54 + 85,12 + 122,57}{3}$$

$$VHN = 92,74 \text{ VHN}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *sealing* pada kuat arus 2 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{70+70}{2} = 70 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(70^2)} = 0.07567 \mu\text{m} \times 10^3$$

$$VHN = 75.67 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{75,67 + 99,65 + 127,16}{3}$$

$$VHN = 100,82 \text{ VH}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *anodizing* pada kuat arus 3 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{54+55}{2} = 54.5 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(54.5^2)} = 0.12483 \cdot \mu\text{m} \times 10^3$$

$$VHN = 124.83 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{124,83 + 110,22 + 111.18}{3}$$

$$VHN = 115,41 \text{ VHN}$$

Perhitungan nilai kekerasan rata-rata (VHN) ketebalan lapisan oksida setelah proses *sealing* pada kuat arus 3 Ampere. (Tabel 4.2)

Diketahui : $P = 200 \text{ gf}$

$$d \text{ rata-rata} = \frac{53+46}{2} = 49.5 \text{ mm}$$

Penyelesaian : $VHN = \frac{1.854 \times P}{(d)^2}$

$$VHN = \frac{1.854 \times 200}{(49.5^2)} = 0.15133 \mu\text{m} \times 10^3$$

$$VHN = 151,33 \text{ kg/mm}^2$$

$$\text{Kekerasan rata - rata} = \frac{151,33 + 116,15 + 108,34}{3}$$

$$VHN = 125,27 \text{ VHN}$$