

LAMPIRAN A
PERHITUNGAN DAN DATA PERCOBAAN

1. Perhitungan Volume Cetakan

Diketahui : Panjang = 10 cm, lebar = 5 cm dan tinggi = 1,5 cm

Ditanya : $V = \dots\dots?$

Jawab : $V = P \times L \times T$

$$V = 10 \text{ cm} \times 5 \text{ cm} \times 1,5 \text{ cm}$$

$$V = 75 \text{ cm}^3$$

2. Perhitungan Komposisi Bahan

Diketahui : $P =$ massa jenis bahan (gram/cm^3)

$V =$ volume cetakan (cm^3)

Fraksi Volume = komposisi bahan (%)

Ditanya : massa = $\dots\dots?$

Jawab : massa = $p \times v \times$ fraksi volume

$$\text{massa} = 1.17 \text{ gram/cm}^3 \times 75 \text{ cm}^3 \times 0.02 \%$$

3. Perhitungan Kompaksi

Diketahui : A_1 Luas penampang hidrolis = $490,874 \text{ mm}^2$

A_2 Luas penampang komapksi = 5000 mm^2

P_1 Tekanan hidrolis = 40 bar = 4 Mpa

Ditanya : P_2 (Tekanan kompaksi)....?

Jawab ; $P = \frac{F}{A} \dots \text{ Mpa}$

$$F = P \times A$$

$$= \frac{P_1 \times A_1}{A_2} = \frac{4 \times 490,874 \text{ mm}^2}{5000 \text{ mm}^2} = 0.4 \text{ Mpa}$$

4. Perhitungan Densitas

Berikut merupakan contoh perhitungan densitas teoritis pada varian 1

$$p_{th} : p_{Al} \cdot V_{Al} + p_{Si} \cdot V_{Si}$$

$$p_{th} : (5.61 \cdot 0.05) + (0.641 \cdot 0.1) + (3.99 \cdot 0.1) + (1.2 \cdot 0.5) + (0.60 \cdot 0.1) + (1.17 \cdot 20)$$

$$p_{th} : 1.607 \text{ gram/cm}^3$$

Selain itu, adapun contoh perhitungan densitas aktual

Diketahui : massa = 14.82 gram

volume = 9 cm

Ditanya : $p_m \dots\dots?$

Jawab : $\rho_m = \frac{m}{v}$

$$\rho_m = \frac{14.82}{9} = 1.592 \text{ gram/cm}^3$$

5. Perhitungan Porositas

Diketahui : $\rho_{th} = 1.607 \text{ gram/cm}^3$

$$\rho_m = 1.592 \text{ gram/cm}^3$$

Ditanya : Porositas....?

Jawab : $P (\%) = \frac{\rho_{th} - \rho_m}{\rho_{th}} \times 100\%$

$$P (\%) = \frac{1.607 - 1.592}{1.607} \times 100\%$$

$$P (\%) = 1.34\%$$

6. Perhitungan Daya Serap Air

Diketahui : $m_k = 14.27 \text{ gram}$

$$m_b = 14.48 \text{ gram}$$

Ditanya : $DSA = \frac{m_b - m_k}{m_k} \times 100\%$

$$DSA = \frac{14.48 - 14.27}{14.27} \times 100\% = 1.427\%$$

LAMPIRAN B
DATA HASIL PENELITIAN



Variasi (2)

FAKULTAS TEKNIK-UNIVERSITAS INDONESIA
LABORATORIUM UJI
CENTER FOR MATERIALS PROCESSING AND FAILURE ANALYSIS

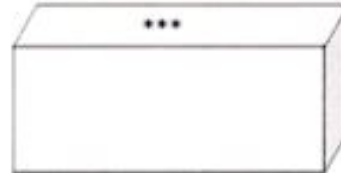
Gedung MRC Lantai 2 Fakultas Teknik, Kampus UI, Depok 16424
WhatsApp. 0819-2884-9045 | Tel. 021-7884 9045
email : cmpfautui@ui.ac.id website : www.cmpfa-ui.co.id

LAPORAN PENGUJIAN KEAUSAN
WEAR RESISTANCE TEST REPORT

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No Laporan <i>Report Nr</i>	M0075	Tanggal Terima <i>Receiving Date</i>	19 Juni 2024
No Kontrak <i>Contract Nr.</i>	M0075/PT.02/FT04/P/2024	Tanggal Uji <i>Date of Test</i>	24 Juni 2024
Pemakai Jasa <i>Customer</i>	Azhar	Metode Uji <i>Testing method</i>	ASTM G99
Alamat <i>Address</i>	Universitas Sultan Ageng Tirtayasa	Jenis Uji <i>Type Of Test</i>	Aus
Bahan <i>Material</i>	Komposit	Mesin Uji <i>Testing machine</i>	OGOSHI


Sketsa Sampel
Sample Figure



* Daerah penjejukan

Kode Sampel	Lebar Jejak Rata-rata (b) [mm]	Tebal Cincin (B) [mm]	Diameter Cincin (d) [mm]	Beban (P) [Kg]	Jarak Luncur (x) [m]	Kecepatan [m/s]	Spesifik Abrasi [mm ³ /mm]
Variasi (1)	4.02	3	30	3.16	100	1.97	$10.8274680 \times 10^{-6}$
Variasi (3)	3.05	3	30	3.16	100	1.97	4.7287708×10^{-6}
Variasi (2)	3.11	3	30	3.16	100	1.97	5.0133718×10^{-6}

Depok, 28 Juni 2024
Ketua Divisi Pengujian Material


(Ahmad Ashari, S.T., M.T.)

LAMPIRAN C
DOKUMENTASI PENELITIAN

