



LABORATORIUM MEKANIKA TANAH
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PENGUJIAN BATAS SUSUT
ASTM D 427 - 74

Proyek : Tugas Akhir
 Lokasi : Desa Klangkapan I, Marguluweh, Seyegan, Kabupaten Sleman
 Dikerjakan : Ronaldo Fajriansyah
 Tanggal : 19 Januari 2017
 Sampel : Tanah Asli

No.	No.Pengujian		1	2	Rata-Rata	
1	Berat Cawan Susut	W1	cm	38.01	30.98	34.50
2	Berat Cawan Susut + Tanah Basah	W2	cm	68.26	62.03	65.15
3	Berat Cawan Susut + Tanah Kering	W3	cm	60.29	53.85	57.07
4	Berat Tanah Kering, (W _u = W3 - W1)		gr	22.28	22.87	22.58
5	Kadar Air, w = (W2-W3)/(W3-W1)x100%		%	35.77	35.77	35.77

No.	No.Pengujian		1	2	Rata-Rata	
1	Diameter Ring	d	cm	4.11	4.18	4.145
2	Tinggi Ring	t	cm	1.2	1.2	1.2
3	Volume Ring	V	cm ³	15.92	16.47	16.19389

No.	No.Pengujian		1	2	Rata-Rata	
1	Berat Air Raksa yang Terdesak Tanah Kering + Gelas Ukur	W4	gr	199.45	208.63	204.04
2	Berat Gelas Ukur	W5	gr	60.7	60.7	60.70
3	Berat Air Raksa (W6 = W4 - W5)	W6	gr	138.75	147.93	143.34
4	Berat Tanah Kering	W	gr	22.28	22.87	22.58
5	Volume Tanah Kering	V	cm ³	10.20	10.88	10.54

No.	No.Pengujian		1	2	Rata-Rata	
1	Batas Susut Tanah	SL	%	7.31	9.08	8.19
2	Angka Susut	SR	cm	2.18	2.10	2.14
3	Susut Volumetrik	VS	cm ³	0.62	0.56	0.59
4	Susut Linier	LS	%	20.63	18.64	19.63

Diketahui Oleh :

(Ir. Akhmad Marzuko, M.T.)

Perhitungan Batas Susut

1. Berat Tanah Kering

$$\begin{aligned} \text{Berat tanah kering} & (W_0) 1 = W_3 - W_1 \\ & = 60,29 - 38,01 \\ & = 22,28 \text{ gr} \end{aligned}$$

$$\begin{aligned} \text{Berat tanah kering} & (W_0) 2 = W_3 - W_1 \\ & = 53,85 - 30,98 \\ & = 22,87 \text{ gr} \end{aligned}$$

$$\begin{aligned} \text{2. Kadar air (w) 1} & = \frac{W_2 - W_3}{W_3 - W_1} \times 100\% \\ & = \frac{68,26 - 60,29}{60,29 - 38,01} \times 100\% \\ & = 35,77\% \end{aligned}$$

$$\begin{aligned} \text{Kadar air (w) 2} & = \frac{W_2 - W_3}{W_3 - W_1} \times 100\% \\ & = \frac{62,03 - 53,85}{53,85 - 30,98} \times 100\% \\ & = 35,77\% \end{aligned}$$

$$\begin{aligned} \text{3. Volume tanah kering (V}_0\text{) 1} & = \frac{\text{Berat Air Raksa}}{13,6} \\ & = \frac{138,75}{13,6} \\ & = 10,20 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Volume tanah kering (V}_0\text{) 2} & = \frac{\text{Berat Air Raksa}}{13,6} \\ & = \frac{147,93}{13,6} \\ & = 10,88 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{4. Batas susut tanah (SL)} & = \left(\frac{\text{volume tanah kering}}{\text{berat tanah kering}} \right) - \left(\frac{1}{2,598} \right) \times 100\% \\ & = \left(\frac{10,20}{22,28} \right) - \left(\frac{1}{2,598} \right) \times 100\% \\ & = 7,31\% \end{aligned}$$

$$\begin{aligned} \text{Batas susut tanah (SL)} & = \left(\frac{\text{volume tanah kering}}{\text{berat tanah kering}} \right) - \left(\frac{1}{2,598} \right) \times 100\% \\ & = \left(\frac{10,88}{22,87} \right) - \left(\frac{1}{2,598} \right) \times 100\% \\ & = 9,08\% \end{aligned}$$