

Report #10

Report by

Compaction Characteristics of Soil

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Experiment Date [- - 20]

Submission Due Date [- - 20]

[This report contains the following outlines

1. The title;
2. Measurements and calculations;
3. Discussion &
4. References]

[This work was supervised by

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Note for student: please do not write below this line

Report was marked by _____

Maximum attainable mark _____

Report's mark _____

Notes for student (if any):

Name..... Group No..... Date Time.....

Description of Soil

This test is conducted in accordance with ASTM D698 "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³(600 kN-m/m³))".

Please place in the appropriate place

1. Material and equipment

Grain size analysis	Soil constituents	G%	S%	M+C %
	Unified soil classification symbol			
	% retained on 3/4-in. (19.0-mm) sieve.			
	% retained on 3/8-in. (9.5-mm) sieve.			
	% retained on 4 (4.75-mm) sieve.			
Soil plasticity	Liquid limit			
	Plastic limit			
	Plasticity index			
Specific gravity G_s				

	Trial no.	
Test Method	(A, B or C)	
% of oversized material	(if any)	
Mold	Diameter (m)	
	Height (m)	
	Volume, V (m ³)	
	Mass (kg)	
Rammer	Mass, M_{md} (kg)	
	Fall height (m)	
Method of soil preparation	Moist	
	Dry	
Water content of the specimen is measured to the nearest:	1 %	
	0.1 %	

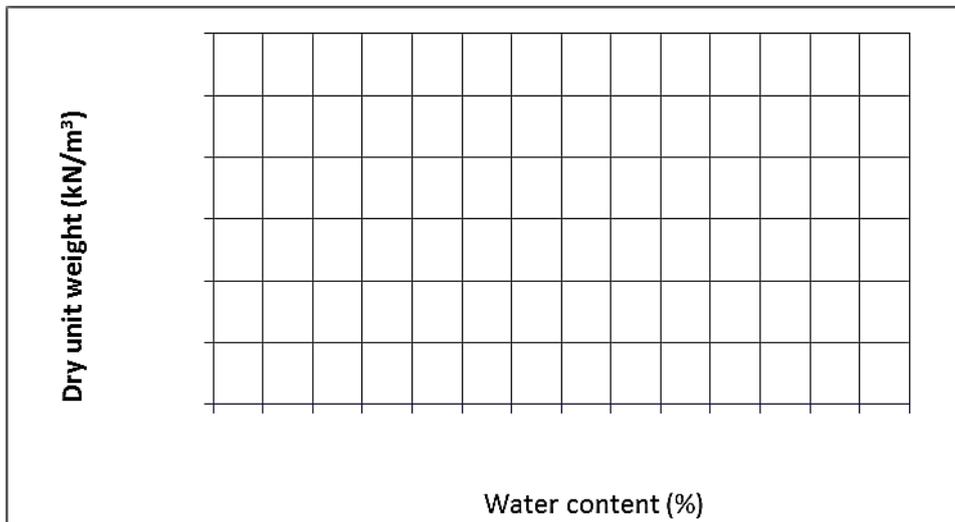
Useful relationships

$\rho_m = \frac{(M_t - M_{md})}{1000 V} \quad (1)$	$w_{sat} \frac{(\gamma_w)(G_s) - \gamma_d}{(\gamma_d)(G_s)} \times 100 \quad (5)$
$\rho_d = \frac{\rho_m}{1 + \frac{w}{100}} \quad (2)$	
$\gamma_d = 9.807 \rho_d \text{ in kN/m}^3 \quad (4)$	

2. Measurements and calculations

Trial No.	Mass of container (g) M_c	Mass of container and wet specimen (g) M_{cws}	Mass of container and oven dry specimen (g) M_{cs}	Water content $w\%$	mass of moist specimen and mold (kg) M_t	moist density of compacted specimen (Mg/m^3) ρ_m	dry density of compacted specimen, (Mg/m^3) ρ_d	dry unit weight of compacted specimen (kN/m^3) γ_d	water content for complete saturation (w_{sat}) %
1									
2									
3									
4									
5									

Water content vs dry unit weight plot



Optimum water content (%)	Maximum dry unit weight (kN/m^3)

