

Compaction Test
 Members: JM, JS, EE, GR, SC
 Group Number: 2
 Date: 4/17/22

INPUTS

Diameter of Mold	4 in
Depth of Mold	4.5 in
Volume of Mold	0.0327 ft ³
Weight of Mold and Base	4277.5 g
Weight of Hammer	5.5 lbs
Height of Fall of Hammer	12 in
No. of Layers	3
No. of Blows per Layer	25
Compaction Energy	151260.86 inlb/ft ³

	Specific Gravity 2.713673755			
Determination Number	1	2	3	4
Weight of Mold and Wet Soil, g.	5964	6164	6056	5978
Weight of Mold, g.	4277.5	4277.5	4277.5	4277.5
Weight of 1/30 ft ³ Wet Soil, g.	1686.5	1886.5	1778.5	1700.5
Wet Unit Weight, pcf.	111.54	124.77	117.63	112.47
Weight of Container and Wet Soil, g.	194.8	223.72	256.27	148.8
Weight of Container and Dry Soil, g.	187.6	206.94	222.41	129.32
Weight of Moisture	7.2	16.78	33.86	19.48
Weight of Container, g.	99.13	103.16	94.14	79.36
Weight of Dry Soil, g.	88.47	103.78	128.27	49.96
Moisture Content, %	8.14	16.17	26.40	38.99
Dry Unit Weight, pcf.	103.15	107.40	93.06	80.92
Porosity, %	39.09	36.57	45.04	52.21
Dry Unit Weight (Theoretical) at S = 100%	138.70	117.69	98.66	82.28
Dry Unit Weight (Theoretical) at S = 80%	132.70	109.36	89.34	72.91

Determination No. 1

Load Ring Number:	155		
DIA of Loading Block, in.	1.375		
Penetration, in.	No. of Divisions	Load (lbs)	Stress (psi)
	0	0	0
	0.025	25	147.93
	0.05	52	307.6944
	0.075	71	420.1212
	0.1	82	485.2104
	0.2	101	597.6372
	0.3	90	532.548
	0.4 INPUT	#VALUE!	#VALUE!
	0.5 INPUT	#VALUE!	#VALUE!

Determination No. 2

Load Ring Number:	17592		
DIA of Loading Block, in.	1.375		
Penetration, in.	No. of Divisions	Load (lbs)	Stress (psi)
	0	0	0
	0.025	13	27.3
	0.05	38	79.8
	0.075	70	145.122
	0.1	108	223.5464
	0.2	171	353.5658
	0.3	260	537.244
	0.4	305	630.115
	0.5	328	677.5824

Determination No. 3

Load Ring Number:
DIA of Loading Block, in.
Penetration, in.

	18113		
	1.375		
	No. of Divisions	Load (lbs)	Stress (psi)
0	0	0	0
0.025	3	1.029	0.692979037
0.05	5	1.715	1.154965061
0.075	8	2.744	1.847944098
0.1	12	4.116	2.771916147
0.2	29.5	10.1185	6.814293862
0.3	45	15.435	10.39468555
0.4	60	20.58	13.85958074
0.5	72	24.4622	16.4740445

Determination No. 4

Load Ring Number:
DIA of Loading Block, in.
Penetration, in.

	INPUT		
	INPUT		
	No. of Divisions	Load (lbs)	Stress (psi)
0	INPUT	FALSE	#VALUE!
0.025	INPUT	FALSE	#VALUE!
0.05	INPUT	FALSE	#VALUE!
0.075	INPUT	FALSE	#VALUE!
0.1	INPUT	FALSE	#VALUE!
0.2	INPUT	FALSE	#VALUE!
0.3	INPUT	FALSE	#VALUE!
0.4	INPUT	FALSE	#VALUE!
0.5	INPUT	FALSE	#VALUE!

Range

Load Ring Number Ring

	88	30.23	
	127	12.4928	
	155	5.9172	
	168	6.3	
0<=Number of Divisions<=40	17592	2.1	
Number of Divisions>40	17592	2.0638	0.656
0<=Number of Divisions<=70	18113	0.343	
Number of Divisions>70	18113	0.3227	1.2278
0<=Number of Divisions<=70	20206	26.6143	
Number of Divisions>70	20206	27.2866	-42.2762
0<=Number of Divisions<=18	22553	0.0971	
18<Number of Divisions<=50	22553	0.0844	0.2854
Number of Divisions>50	22553	0.09151	0.231