ARIZONA DEPARTMENT OF TRANSPORTATION

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Clear

SAND CONE DENSITY (ARIZ 230) AASHTO

USE CAPITAL LETTERS

LAB NUMBER	UNIT NUMBER	MATL	TYPE	PUR-POSE	TEST LAB	SIZE%	SIZE

TEST NO.	LOT OR SUFFIX	SAMPLED BY (FIRST & LAST NAME)	MO	DAY	YEAR	TIME (MILITARY TIME)

SAMPLED FROM	LIFT NO.	RDWY	STATION (IF MILE POST, INPUT DECIMAL)

ORIGINAL SOURCE	PROJECT ENGINEER/ SUPERVISOR	PROJECT NUMBER	TRACS NUMBER

REMARKS

SAND CONE – AASHTO T191		
A. Total wet weight of material from the hole		lb.
B. Wet weight of (Oversized particles) retained on #4 sieve		lb.
C. Wet weight of (FINE particles) material passing #4 sieve (A-B)		lb.
D. Percent of moisture in material from hole		%
E. Weight of sand & apparatus before filling hole		lb.
F. Weight of sand & apparatus after filling hole		lb.
G. Cone Correction		lb.
H. Bulk Density of Sand		PCF
I. Volume of hole ((E – F – G) / H)		CF
J. Dry Mass of material removed from hole (P + Q)		PCF
K. In-place dry density (J / I)		PCF
Compaction (J / M) or (J / T)		%
Required specification		%
I. Volume of hole ((E – F – G) / H)		CF

MATERIAL RETAINED ON SIEVE		
P. Dry Mass of (Oversized) partials (B / (1+ (Note))		
Q. Dry Mass on (Fine) particles (C / (1 + D))		
R. Percentage of (Fine) particles retained on sieve ((100 * Q) / (P + Q))		%
S. Percentage of (Oversized) particles retained on sieve ((100 * P) / (P + Q))		%

Note: When calculating dry mass covert percent to a decimal (% / 100). Use Moisture content from AASHTO T255. If moisture test not performed, use a moisture content of 2%.

MOISTURE CONTENT T255 OR T265	
Wet weight of material	%
Dry weight of material	%
Moisture Content	%

ONE POINT DETERMINATION – AASHTO T272		
a. Weight of Mold, Base Plate & Soil		lb.
b. Weight of Mold & Base Plate		lb.
c. Weight of compacted soil (a – b)		lb.
d. Volume of Mold		CF
e. Wet density (c / d)		PCF
f. Moisture Content		%
g. Max. Dry density (e / (f + 100)) * 100		PCF

PROCTOR INFORMATION		
L. Proctor Method (A / D)		Note: Method A proctors can only be utilized when 40% or less is retained on #4. If 30% or more of rock is retained on 3/4" label as excessive rock test cannot be performed.
M. Maximum Dry Density		
N. Optimum Moisture		
O. Specific Gravity		

T. Corrected Maximum Dry Density		PCF
V. Corrected Optimum Moisture		%

CORRECTED DRY DENSITY		CORRECTED OPT. MOISTURE	
(100 * M * (62.4 * O)) / (M * S) + (62.4 * O) * R)	= T	(N * R) + (Note * S) / 100	= V

Note: Use moisture content from AASHTO T255, if not preformed moisture will be 2%

TEST OPERATOR AND DATE

RESIDENT ENGINEER, PROJECT SUPERVISOR, OR LABMAN AND DATE

Date of Calibration: _____

Test Operator: _____

I.D. No. of Mold used in calibration: _____

Volume of Mold used in calibration: _____

Identification of Sand: _____

Identification of Sand Cone Apparatus: _____

CONE CORRECTION		
Wt. of Apparatus Filled with Sand (.01 lb.)	**Wt. of Apparatus after opening (.01 lb.)**	**Cone Correction (.01 lb.)**

CC = Wt. of Apparatus Filled with Sand – Wt. of Apparatus after opening

	BULK DENSITY OF SAND			
	Wt. of Apparatus Filled with Sand (.01 lb.)	**Wt. of Apparatus after opening (.01 lb.)**	**Cone Correction (.01 lb.)**	**Results (.01 lb.)**
Trial #1				
Trial #2				
Trial #3				

Average of three results = _____

$$\frac{\textbf{AVERAGE OF 3 TEST}}{\textbf{Volume of Container}} = \textbf{Bulk Density of Sand}$$