

COLORADO DEPARTMENT OF TRANSPORTATION

Contract ID _____ Region _____ Date _____

Soils AND AGGREGATE SIEVE ANALYSIS WHEN SPLITTING ON THE No. 4 SIEVE

Project No _____

CP 21, CP 31 / AASHTO T89,T90,M145 / CPL- 2104

Project Location _____

Item Description _____ Pit Name _____

Prime Contractor _____ Item _____

Sample ID SMM _____ Lab Reference Number SMM _____ Class _____ Test no. _____ Tested by _____

NOTE: Do not use this form when NOT splitting over the # 4 Sieve. Use CDOT Form 565.

Total (+ #4) Gradation				
Total Moist Sample Weight	Total + #4 Moist Sample Weight:	Total (- #4) Dry Sample Weight:	Specs	
Sieve	Weight	Percent Retained	Percent Passing	Specs
4"				
3"				
2 1/2 "				
2"				
1 1/2 "				
1"				
3/4 "				
1/2 "				
3/8 "				
(+ #4)				
Total (- #4) Moist Wt.				

Sample Information	
Sampled From	
Supplier Ticket No.	
Time Sampled	
Station	
Lane	
Quantity Sample Represents	

CP 21 Section 6.2:
Calculate the percent passing for the #8 - #200 by multiplying the percent passing each sieve of the washed sieve analysis specimen by the percent passing the (+ #4) sieve of the total sample divided by 100.

#8	
#10	
#40	
#50	
#200	

(- #4) % Moisture and Dry Weight	
Pan ID	
Pan Weight	A
Pan & Sample - Wet Weight (g)	B
Pan & Sample - Dry Weight (g)	C
Sample - Wet Weight (g)	D= (B-A)
Sample - Dry Weight (g)	E= (C-A)
Moisture Loss (g)	F= (D-E)
Moisture Content (MC) %	G= (F / E)
Specimen Dry Weight (SDW_1)	E
If a separate (- #4) moisture sample is used to determine dry mass of gradation sample, use calculation below to determine (- #4) Sample Dry weight before wash (SDW_2) using the MC above.	

(- #4) Gradation Washed Sieve Analysis

Sieve	Weight	Percent Retained	Percent Passing Washed Sieve
#8			
#10 - Soils			
#16			
#30			
#40 - Soils			
#50			
#100			
#200			

(- #4) Wet Weight ÷ (100 + MC %) x 100 = (-#4) Sample Dry Wt(SDW_2)

(- #4) Wet WT. _____ ÷ (100 + _____) x 100 = _____ SDW_2

- #200 TSW _____

(DWW - TSW) ÷ DWW x 100 = % Diff (Spec: ≤ 0.3%)

(_____ - _____) ÷ _____ x 100 = _____ %

IA Sample ID _____

Place IA Stamp Here

Electronic Signature of IA Personnel

Comments _____

ATTERBERG LIMIT WORK SHEET

Tested By:			Contract ID:			Sample ID:		
LIQUID LIMIT						Number of Blows		Multiplier
TIN ID						22	0.9850	
A = Mass of Tin						23	0.9900	
B = Mass of Tin + Wet Soil (g)						24	0.9950	
C = Mass of Tin + Dry Soil (g)						25	1.0000	
D = Wt of wet soil (B-A) (g)						26	1.0050	
E = Wt of dry soil (C-A) (g)						27	1.0090	
F = LOSS (D-E) (g)						28	1.0140	
Moisture Content = (F ÷ E) x 100						LL% = Moisture Content @ number of blows X Multiplier.		
Number of Blows								
Liquid Limit (%)						Plastic Index		Specifications
PLASTIC LIMIT						Liquid Limit %		
Tin ID						Plastic Limit %		
A = Mass of Tin						Plasticity Index		
B = Mass of Tin + Wet Soil (g)						M145 Soil Classification		
C = Mass of Tin + Dry Soil (g)						#10		
D = Wt of wet soil (B-A) (g)						#40		
E = Wt of dry soil (C-A) (g)						#200		
F = LOSS (D-E) (g)						AASHTO Classification		
Moisture Content = (F ÷ E) x 100								

WATER SOLUBLE SULFATES WORK SHEET

Sample ID	Date Received	Test date	Project No.
Sample location			
Soil Description			
Tested by (print name)	A) Number of dilutions: =y		
Sample date	B) Final dilution (10 Y: 1)		
Sample bottle ID	C) Reading:		
Saturation date	D) Corrected reading		
Saturation time	E) Sulfate concentration		
Test start time	E =(Bx D) (mg/L ppm %)		

Simplified Procedure

- | | |
|---|--|
| <ol style="list-style-type: none"> 1) Dry soil (<140° F/60° C) and process through the #4 sieve. 2) Process a representative sample through a #40 sieve. 3) Place a 25g representative sample into clean flask or container. 4) Add 250ml distilled water and shake well. (10:1 dilution) . 5) Let stand undisturbed for a minimum of 16 hrs maintaining the solution@ 140° F (+/- 5° F). 6) Pipet 25ml of standing solution and deposit into clean 500ml flask (do not disturb sediment). If sample exhibits turbidity then filter until clear. 7) Dilute test sample to 250ml by adding 225ml of distilled water. (100:1 dilution). | <ol style="list-style-type: none"> 8) Pipet 10ml of sample into sample cells (1 blank, 1 reaction sample). 9) Add reagent to 1 cell, shake well and let stand a minimum of 5 min. and not more than 10 min. 10) Place blank into colorimeter and zero the meter. 11) Replace blank with reacted sample and take reading. 12) Record the reading. (mg/L to 10, ppm to 10, % to 0.01). 13) If the reading exceeds the limits of the meter discard test sample and blank. Clean the sample cells. Dilute sample further by taking 25ml from the 10:1 test sample (step 4) and dilute to 500ml. (200:1 dilution) Repeat steps 8 -12. Continue dilutions until a reading is obtained. |
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