



Kumar & Associates, Inc.
Geotechnical and Materials Engineers
and Environmental Scientists
www.kumarusa.com

2390 South Lipan Street
Denver, CO 80223
Phone: (303) 742-9700
Fax: (303) 742-9666
Email: kadenver@kumarusa.com

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs and Summit County, Colorado

TABLE 1
SUMMARY OF LABORATORY TEST RESULTS

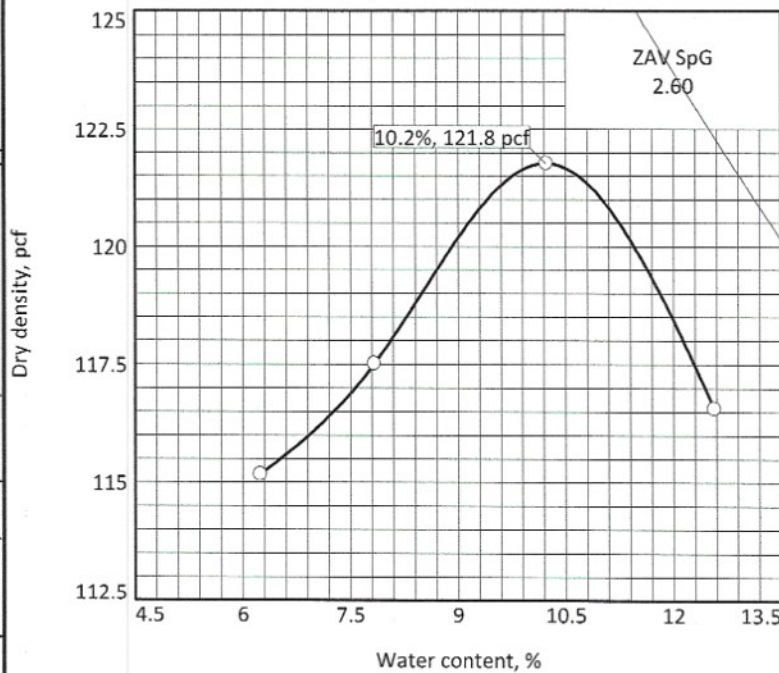
PROJECT NO.: 22-1-332
PROJECT NAME: COLORADO AGGREGATE RECYCLING
DATE RECEIVED: 09/29/2022

SAMPLE LOCATION	DATE TESTED	LA ABRASION % LOSS	LA ABRASION GRADING	R-VALUE 300 PSI	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		MDD (pcf)	OMC (%)
					GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
COLORADO SPRINGS PIT	10/12/22	36.5	B	88	50	41	9	NV	NP	121.8	10.2
GOLDEN PIT	10/20/22	40.8	B	79	46	46	8	28	NP	121.2	11.4

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

COMPACTION TEST REPORT

Curve No. 2346



Preparation Method	
Rammer: Wt.	10 lb. Drop 18 in.
Type	Manual
Layers: No.	five Blows per 56
Mold Size	0.075 cu. ft.
Test Performed on Material	
Passing	3/4 in. Sieve
%>3/4 in.	0 %<No.200 9.1
Atterberg (D 4318): LL	NV PI NP
NM (D 2216)	Sp.G. (D 854) 2.6
USCS (D 2487)	GW-GM
AASHTO (M 145)	A-1-a
Date: Sampled	9/30/22
Received	9/30/22
Tested	10/12/22
Tested By	DN

COMPACTION TESTING DATA
ASTM D 1557-12 Method C Modified

	1	2	3	4	5	6
WM + WS	10661.0	10810.0	11067.0	10964.0		
WM	6482.0	6482.0	6482.0	6482.0		
WW + T #1	1102.6	869.0	1155.0	877.9		
WD + T #1	1046.8	817.0	1064.0	797.0		
TARE #1	153.0	153.3	175.0	153.4		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	6.2	7.8	10.2	12.6		
DRY DENS.	115.2	117.5	121.8	116.6		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
3/4"	100	95-100
3/8"	70	
#4	50	30-65
#8	39	25-55
#16	30	
#30	23	
#50	17	
#100	12	
#200	9.1	3-12

TEST RESULTS

Maximum dry density = 121.8 pcf

Optimum moisture = 10.2 %

Project No. 22-1-332 Client:

Project: Colorado Aggregate Recycling

Location: Colorado Springs Pit Sample Number: 2346

Kumar & Associates, Inc.

Denver, Colorado

Material Description

well-graded gravel with silt and sand

Remarks:

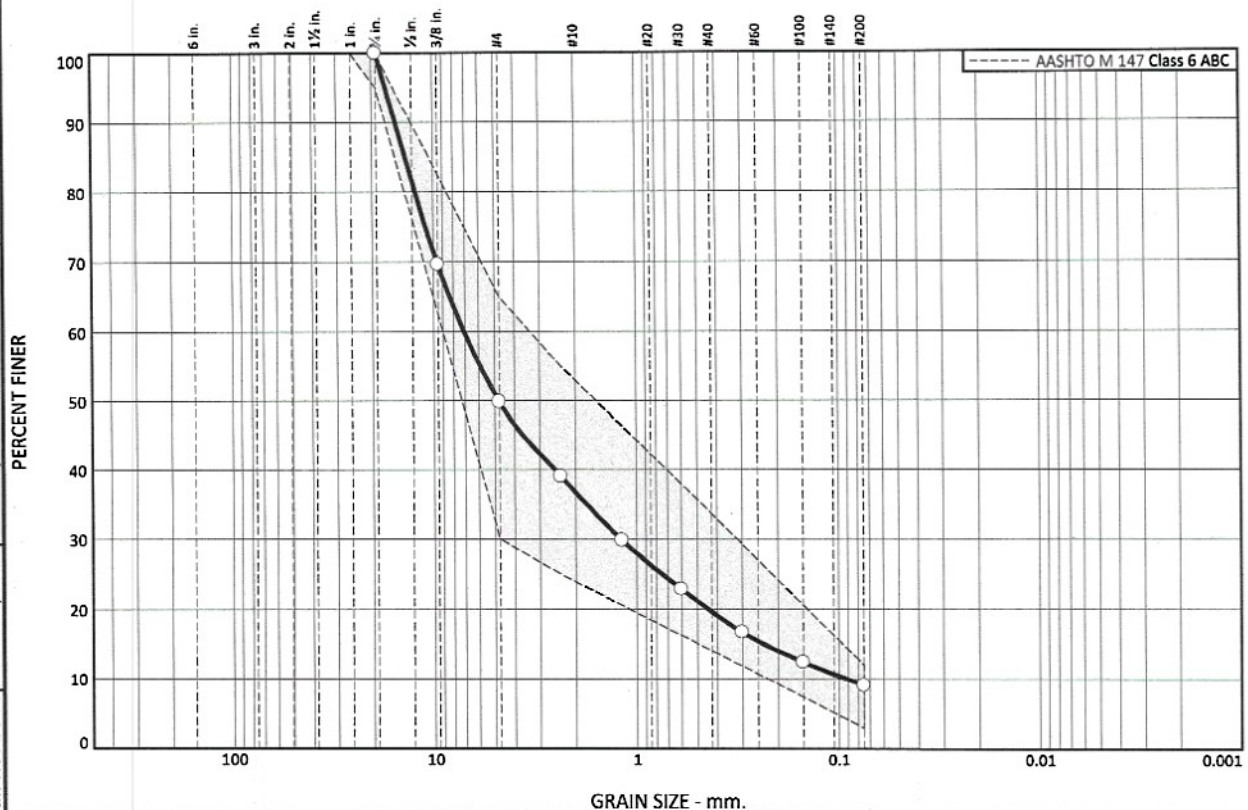
Checked by: JJM

Title: Lab Manager

Figure

These test results apply only to the samples which were tested, the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

ASTM D422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	50	13	17	11	9	

Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec. * (%)	Out of Spec. (%)	Pct. of Fines
3/4"	100	95-100		
3/8"	70			
#4	50	30-65		
#8	39	25-55		78
#16	30			60
#30	23			46
#50	17			34
#100	12			25
#200	9.1	3-12		18

* AASHTO M 147 Class 6 ABC

Location: Colorado Springs Pit
Sample Number: 2346

Material Description	
well-graded gravel with silt and sand	

PL= NP Atterberg Limits PI= NP
LL= NV

USCS= GW-GM Classification AASHTO= A-1-a

Test Remarks

Sample Date: 9/30/22

Kumar & Associates, Inc.

Denver, Colorado

Client:

Project: Colorado Aggregate Recycling

Project No: 22-1-332

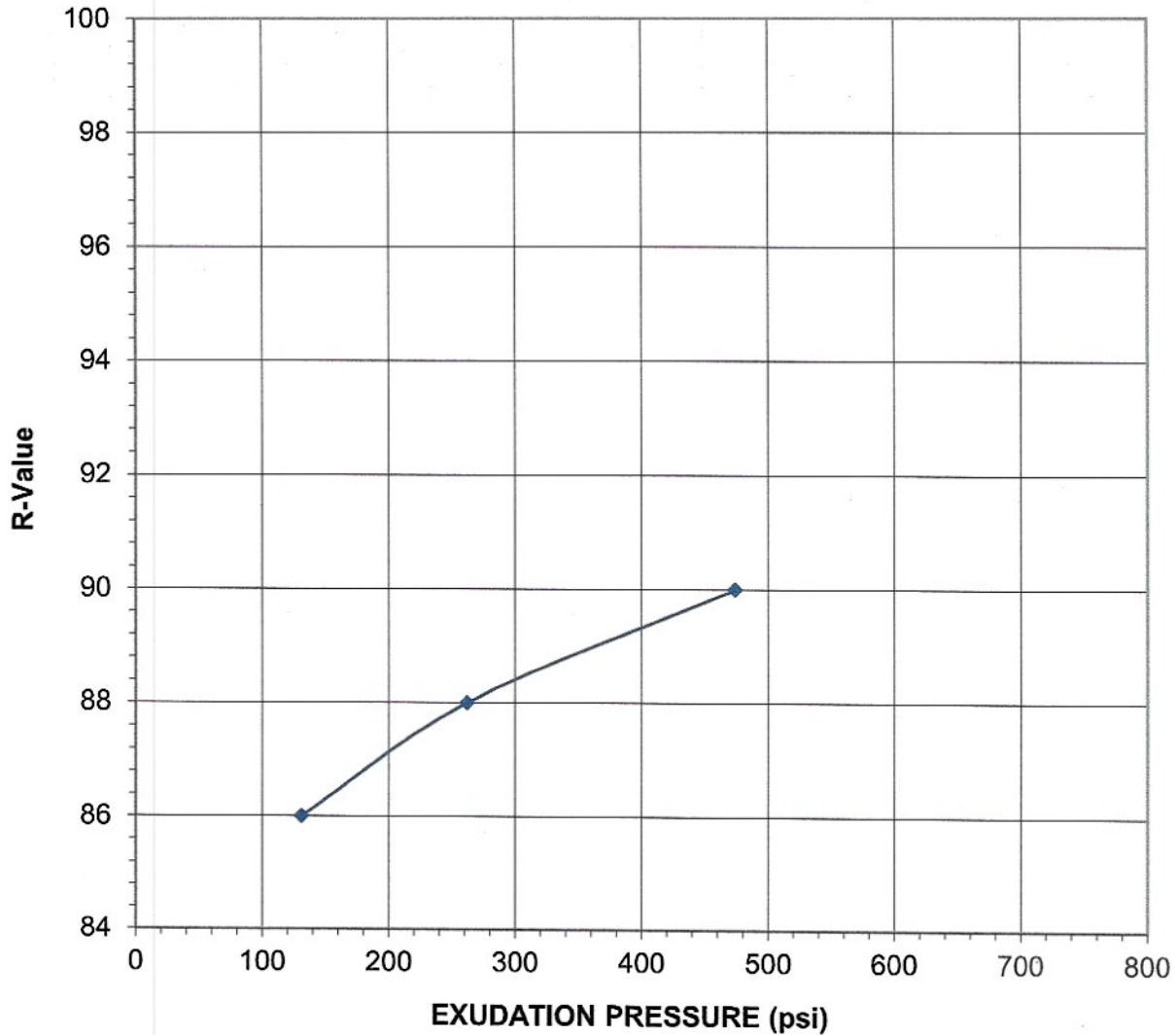
Figure

Tested By: DN

Checked By: JJM

R-VALUE

TEST SPECIMEN	1	2	3	4	R-VALUE (300 psi)
MOISTURE CONTENT (%)	13.8	14.2	14.7		88
DENSITY (pcf)	119.7	118.4	121.1		
EXPANSION PRESSURE (psi)	0.000	0.000	0.000		
EXUDATION PRESSURE (psi)	474	262	131		
R-VALUE	90	88	86		



SOIL TYPE: well-graded gravel with silt and sand

LOCATION: Colorado Springs Pit Location

DATE SAMPLED: 9-29-2022

DATE RECEIVED: 9-29-2022

DATE TESTED: 10-12-2022

GRAVEL: 50

SAND: 41

SILT AND CLAY: 9

LIQUID LIMIT: NV

PLASTICITY INDEX: NP

These test results apply to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. R-value performed in accordance with ASTM D2844. Atterberg limits performed in accordance with ASTM D4318. Sieve analyses performed in accordance with ASTM D422, D1140

22-1-332

KUMAR & ASSOCIATES

HVEEM STABILOMETER TEST RESULTS

2347