



February 21, 2019

Utelite Corporation
6375 Three Mile Canyon Road,
Coalville, UT 84017

Attention: Mr. Jeff Barrick

Subject: Qualifications Testing of Utelite Structural Coarse Lightweight Aggregate

Dear: Mr. Jeff Barrick

Kleinfelder has performed testing, per your request, to verify the conformance of Utelite Structural Coarse Lightweight Aggregate with ASTM C330-17 "Standard Specification for Lightweight Aggregates for Structural Concrete".

Upon review of the results, the Utelite Structural Coarse Lightweight Aggregates meet C330-17 test requirements for the Calendar Year 2019.

See the following results.

Sincerely,

Spencer Davis, PE
Senior Geotechnical Engineer

849 West Levoy Drive, Suite 200
Salt Lake City, UT, 84123
o| (1) 801.261.3336
d| (1) 801.713.2870
m| (1) 435.512.0580
f| (1) 801.261.3306

Coarse Aggregates

SIEVE ANALYSIS			TEST RESULTS				
ASTM C136		AASHTO T27	Standard	CHEMICAL and PHYSICAL PROPERTIES		Results	Specification
Sieve Size	Accum. % Passing	Specifications					
19.0 mm (3/4")	100	100	ASTM C40	Organic Impurities	Color Comparison=	Lighter than Standard	Lighter than Standard
12.5 mm (1/2")	90	90-100	ASTM C641	Staining Index	Stain Index=	20	Less than 60
9.5 mm (3/8")	54	40-80	ASTM C114	Loss on Ignition	Loss, %=	0.420	Less Than 5 Percent
4.75mm (No. 4)	3	0-20	ASTM C142	Clay Lumps and Friable Particles	Fine Aggregate, %=	0.21	Less than 2 Percent
2.36 mm (No. 8)	1	0-10	ASTM C29	Bulk Density: Dry Loose Condition	Unit Weight, lbs./cu.ft=	49.0	55 PCF Maximum
2.00 mm (No. 10)	1	---	ASTM C29	Bulk Density: Saturated Loose Condition	Unit Weight, lbs./cu.ft=	56.8	No Requirement
1.18mm (No.16)	1	---	ASTM C1761	Absorption of Lightweight Fine Aggregate	*Absorption, %=	15.9	No Requirement
0.600 mm (No.30)	1	---	ASTM C127/128	Relative Density of Fine Aggregate (SSD)	Relative Density, (SSD)=	1.777	No Requirement
0.425mm (No. 40)	1	---	ASTM C88	Soundness of Aggregates (Sodium Sulfate)	Soundness Loss, %=	5.1	Less than 12 Percent
0.300mm (No. 50)	1	---	ASTM C88	Soundness of Aggregates (Magnesium)	Soundness Loss, %=	1.7	Less than 18 Percent
0.150mm (No.100)	1	---	ASTM C39	Compressive Strength	Average Strength, psi=	5900	4,000 PSI Minimum
0.075mm (No. 200)	0.6	0-10	ASTM C496	Splitting Tensile Strength	Average Strength, psi=	330	330 PSI Minimum
			ASTM C567	Fresh Concrete Density	Density, lbs./cu.ft=	119	No Requirement
			ASTM C567	Oven Dry Density	Density, lbs./cu.ft=	113.0	No Requirement
			ASTM C567	Approximate Equilibrium Density	Density, lbs./cu.ft=	116.0	No Requirement
			ASTM C157	Drying Shrinkage	Shrinkage, %=	0.06	Less than 0.07
			ASTM C151	Popouts	Popouts=	None	No Popouts
			ASTM C1260	Potential Alkali Reactivity of Aggregates	Reactivity, %=	0.06	Less than 0.10

*Absorption is calculated using a minimum soak time of 24-hours

