



March 28, 2018

Utelite Corporation
75 East 1975 North
Centerville, UT 84014

Attn: Mr. Darren Medeiros
Utelite Corporation
P: (801) 243-7473
E: ucorp4@live.com

Re: Testing of Utelite Structural Coarse Aggregate
Terracon Project Number: 61171161

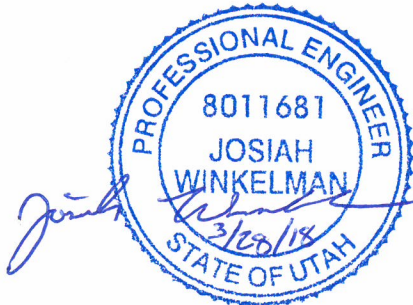
Mr. Medeiros:

As requested Terracon Consultants, Inc. (Terracon) performed testing on the Utelite Structural Coarse Aggregate to verify conformance with the ASTM C330-17 "Standard Specification for Lightweight Aggregates for Structural Concrete". The summary of test results are attached to this letter.

Based on the test results provided, the Utelite Structural Coarse Aggregate manufactured by Utelite Corporation at their facility in Coalville, Utah conforms to the quality requirements of ASTM C330-17 "Standard Specification for Lightweight Aggregates for Structural Concrete" for the tests indicated in the attached summary.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.



Josiah Winkelman, P.E.
Department Manager

Terracon Consultants, Inc. 6949 South High Tech Drive Midvale, UT 84047
P (801) 545-8500 F (801) 545-8600 terracon.com

Environmental

Facilities

Geotechnical

Materials

Lightweight Aggregates for Structural Concrete - ASTM C330

Client: Utelite

Material: Utelite 1/2" Structural Coarse Aggregate

Date Tested: 3/28/2018

Chemical Composition

Test Method	Properties	Results	C330 Requirement
ASTM C40	Organic Impurities	Lighter than Standard	Lighter than Standard
ASTM C641	Staining Index	20 (minor stain)	Less than 60
ASTM C114	Loss on Ignition (%)	0.38	5% max

Physical Properties

Test Method	Properties	Results	C330 Requirement
ASTM C142	Clay Lumps & Friable Particles (%)	0.5	2% maximum
ASTM C29	Loose Bulk Density - Dry (lb/ft ³)	50.8	55 lb/ft ³ max
ASTM C29	Loose Bulk Density - SSD (lb/ft ³)	57.6	---
***ACI 211.2	Absorption (%)	13.3	---
*ACI 211.2	Relative Density (Specific Gravity) - SSD	1.779	---
ASTM C88	Soundness of Aggregate-Sodium (%)	9.7	12% max
ASTM C88	Soundness of Aggregate-Magnesium (%)	1.0	18% max
ASTM C1260	Potential Alkali Reactivity of Aggregates (%)	0.06	0.10% max

Lightweight Aggregate - Concrete Tests

Test Method	Properties	Results	C330 Requirement
ASTM C39	Average 28-day Compressive Strength (psi)	5210	4000 psi min
ASTM C192	Average 28-day Splitting Tensile Strength (psi)	475	320 psi min
ASTM C567	Fresh Concrete Density (lb/ft ³)	119.4	---
ASTM C567	Oven Dry Density (lb/ft ³)	110.5	---
ASTM C568	Approximate Equilibrium Density (lb/ft ³)	113.5	115 lb/ft ³ max
ASTM C157	Drying Shrinkage (%)	0.002	0.07% max

*ACI 211.2 with the addition of a 24 hour soaking period

**Test is ongoing and results are subject to change

*** Represents a 24 hr soak. Full absorption runs between 16% to 17%

Grading - Sieve Analysis

Sieve Size	Passing (%)	C330 Requirement
3/4"	100	100
1/2"	90	90 to 100
3/8"	59	40 to 80
#4	6.0	0 to 20
#8	1.0	0 to 10
#200	0.3	0 to 10

