



C.H.J. Incorporated

1355 E. Cooley Drive, Colton, CA 92324 ♦ Phone (909) 824-7210 ♦ Fax (909) 824-7209
15345 Anacapa Road, Suite D, Victorville, CA 92392 ♦ Phone (760) 243-0506 ♦ Fax (760) 243-1225
77-564A Country Club Drive, Suite 122, Palm Desert, CA 92211 ♦ Phone (760) 772-8234 ♦ Fax (909) 824-7209

January 18, 2011

Utelite Corporation
72 East 1975 North
Centerville, Utah 84014
Attention: Mr. Darren Medeiros

Job No. 10632-5

Subject: Testing of Utelite Coarse Lightweight Aggregate

Dear Mr. Medeiros

At your request, C.H.J., Incorporated performed tests on the Utelite Coarse Lightweight Aggregate to verify conformance with ASTM Designation C 330-09 "Standard Specification for Lightweight Aggregates for Structural Concrete". The Utelite Coarse Lightweight Aggregate is a 1/2-inch expanded shale aggregate produced at the Utelite plant in Coalville, Utah. The results are as follows.

A. DELETERIOUS SUBSTANCES:

Test	Test Method	Test Result	C 330 Requirement
Organic Impurities	C 40	Lighter than Standard	Lighter than Standard
Staining	C 641	Stain Index of 20	Stain Index of Less than 60
Loss on Ignition	C 114	1.10 Percent	Less than 5 Percent



Client: Utelite Corporation
Material: Coarse Lightweight Aggregate

Page No. 2
Job No. 10632-5

B. PHYSICAL TESTS:

<u>Test</u>	<u>Test Method</u>	<u>Test Result</u>	<u>C 330 Requirement</u>
Clay Lumps and Friable Particles	C 142	0.1 Percent	Less than 2 Percent
Bulk Density Dry Loose Condition	C 29	52.2 PCF	55 PCF Maximum
Bulk Density Saturated Loose Condition	C 29	59.3 PCF	No Requirement
Specific Gravity	C 127	1.83	No Requirement
Absorption	C 127	18.2 Percent	No Requirement

<u>Grading - Sieve Analysis (Test Method C 136)</u>			
<u>Sieve Size</u>	<u>Percent Passing</u>	<u>Manufacturer's* Limits</u>	<u>C 330 Requirement</u>
3/4" (19 mm)	100	100	100
1/2" (12.5 mm)	94	85-100	90-100
3/8" (9.5 mm)	65	40-80	40-80
No. 4 (4.75 mm)	11	0-20	0-20
No. 8 (2.36 mm)	1	0-10	0-10

* The manufacturer has established these limits in lieu of ASTM C 330.



Client: Utelite Corporation
 Material: Coarse Lightweight Aggregate

Page No. 3
 Job No. 10632-5

C. TESTS ON CONCRETE MADE WITH LIGHTWEIGHT AGGREGATE:

Concrete Mixture - Sand/Lightweight Aggregate

<u>Material</u>	<u>Weight (lbs.)</u>	<u>Specific Gravity</u>	<u>Abs. Volume</u>
Cement - Type II	564	3.15	2.87
Water	312	1.00	5.01
Natural Sand	1,185	2.64	7.19
Utelite Coarse	1,185	1.83	10.38
Admixtures:			
Water Reducing (fl. oz.)	19.7		
Air Entraining (fl. oz.)	1.8		
Slump (inches)	4.00		
Air Content (%)	5.75		1.55
Plastic Unit Weight (pcf)	120.6		

<u>Test</u>	<u>Test Method</u>	<u>28-Day Test Result</u>	<u>C 330 Requirement</u>
Compressive Strength	C 39	4,710 PSI 4,300 PSI 4,380 PSI	3000 PSI Minimum
Average		4,460 PSI	
Splitting Tensile	C 496	480 PSI 450 PSI 465 PSI 470 PSI 475 PSI 465 PSI 455 PSI 450 PSI	310 PSI Minimum
Average		465 PSI	



Client: Utelite Corporation
Material: Coarse Lightweight Aggregate

Page No. 4
Job No. 10632-5

C. TESTS ON CONCRETE MADE WITH LIGHTWEIGHT AGGREGATE: Cont'd

Concrete Mixture - Sand/Lightweight Aggregate

<u>Test</u>	<u>Test Method</u>	<u>Test Result</u>	<u>C 330 Requirement</u>
Oven Dry Density	C 567-05 (Measured)	104.9 PCF	No Requirement
		105.3 PCF	
		105.2 PCF	
Average		105.1 PCF	
Approximate Equilibrium Density	C 567-05 (Calculated per Section 9.2)	108.0 PCF	110.0 PCF Maximum
Drying Shrinkage	C 330 (Section 8.4)	0.051 Percent	0.070 Percent (Max)
Pop-out Test	C 151	No Pop-outs	No Pop-outs

D. RESISTANCE TO FREEZING AND THAWING TEST:

The resistance to freezing and thawing test was not performed. Utelite Corporation can demonstrate necessary resistance to freezing and thawing performance.

E. CONFORMANCE:

The Utelite Coarse Lightweight Aggregate manufactured by Utelite Corporation at Coalville, Utah, conforms to the requirements of ASTM Designation: C 330-09 "Standard Specification for Lightweight Aggregates for Structural Concrete".



Client: Utelite Corporation
Material: Coarse Lightweight Aggregate

Page No. 5
Job No. 10632-5

Thank you for the opportunity to provide materials testing services. If you should have any questions regarding this information, please do not hesitate to contact this firm at your convenience.

Respectfully submitted,
C.H.J., INCORPORATED

Allen D. Evans
Registered Civil Engineer No. 38104
Registration Expires 03-31-2011

JMD/ADE:ndt

Distribution: Utelite Corporation (4)



01-19-11