



March 11, 2026

Ken Nunley  
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**Evaluation of Amrize structural pump blend aggregate  
ASTM C330 Testing  
CTLGroup Project No. 201522**

Dear Mr. Nunley:

As requested, CTLGroup has conducted ASTM C330 testing on the structural pump blend lightweight aggregate material provided by you.

The scope of work included testing aggregate samples and concrete specimens in accordance with ASTM C330, *Standard Specification for Lightweight Aggregates for Structural Concrete*. During the testing program, the following tests were conducted (with modifications as specified in ASTM C330, if applicable):

- ASTM C136, *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*
- ASTM C114, *Standard Test Methods for Chemical Analysis of Hydraulic Cement*
- ASTM C29, *Standard Test Method for Bulk Density (Unit Weight) and Voids in Aggregate*
- ASTM C142, *Standard Test Method Clay Lumps and Friable Particles in Aggregates*
- ASTM C641, *Standard Test Method for Iron Staining Materials in Light-weight Concrete Aggregates*
- ASTM C40, *Standard Test Method for Organic Impurities in Fine Aggregates for Concrete*
- ASTM C127, *Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate*
- ASTM C151, *Standard Test Method for Autoclave Expansion of Hydraulic Cement*
- ASTM C39, *Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens*
- ASTM C567, *Standard Test Method for Determining Density of Structural Lightweight Concrete*
- ASTM C496, *Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens*
- ASTM C157, *Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete*
- ASTM C666, *Standard Test Method for Resistance of Concrete to Standard Freezing and Thawing*

Concrete mixing and specimen fabrication were conducted in accordance with ASTM C192, *Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory*.

## MATERIALS

The provided structural pump blend lightweight aggregate was used for chemical composition and physical property tests. In addition, this material was used for fabrication of concrete specimens to evaluate aggregate pop-outs, freeze-thaw resistance, drying shrinkage, equilibrium density, and compressive and tensile strengths. The gradation of as-received aggregate is presented in Table 1.

**Table 1 - ASTM C136 gradation**

Sieve No.	Cumulative % Retained on Individual Sieve	Cumulative % Passing on Individual Sieve	ASTM C330 Limits for 12.5 mm to 4.75 mm aggregate, % Cumulative Passing on Individual Sieve
3/8"	2.4	97.6	90 – 100
#4	20.5	79.5	65 – 90
#8	41.3	58.7	35 – 65
#16	61.7	38.3	--
#50	88.2	11.8	10 – 25
#100	93.5	6.5	5 – 15
#200	97.0	3.0	0 – 10
Pan	100.0	0.0	--

For concrete batching, a CTLGroup lab stocked Type I/II portland cement, lab stocked coarse aggregate, and lab stocked admixtures were used in addition to the provided lightweight aggregate.

## AGGREGATE TESTING

The results of aggregate specific tests are presented in Table 2.

**Table 2 - Summary of Results for Aggregate Testing**

Test	Description	Result	ASTM C330 Limit
ASTM C128	SSD Specific Gravity	1.83	--
ASTM C128	Absorption, %	19.1	--
ASTM C40	Organic Impurities	No Dark Color	No Dark Color
ASTM C641	Stain Index	0	60 Maximum
ASTM C114	Loss on Ignition, %	1.8	5 Maximum
ASTM C142	Clay Lumps and Friable Particles, %	0.3	2 Maximum
ASTM C29	Loose Dry Bulk Density, lb/ft <sup>3</sup>	63	65 Maximum

## CONCRETE BATCHING

The required quantity of structural pump blend aggregate was soaked in water for 72 hours prior to mixing to achieve a saturated condition. Following this, the additional water was allowed to drain from the aggregate container over a period of 24 hours. The wet aggregate was then thoroughly blended, and a test sample was procured and tested for determining the total moisture content. The purpose here was to determine the actual water content required for batching through appropriate moisture corrections. The total amount of potable water was adjusted during mixing to achieve the desired slump as required by ASTM C330 standard. The sequence of concrete mixing was as follows:

- Initial 3 minutes of mixing: lightweight and natural aggregate, cement, water, and admixtures
- 3 minutes of rest
- 2 minutes of mixing

One 2x2x11.25-in. nominal prisms and three 3x3x11.25-in. nominal prisms were fabricated for autoclave expansion and shrinkage tests, respectively. In addition, three 3x3x11.25-in. nominal prisms were fabricated for freeze-thaw testing per ASTM C666. Several 6x12-in. nominal concrete cylinders were fabricated to evaluate split tensile strength, and equilibrium density, and three 4x8-in. nominal concrete cylinders were fabricated to evaluate compressive strength. The quantities of different materials used to produce concrete mixture are presented in Table 3.

**Table 3 - Mix Proportions (SSD Condition)**

<b>Ingredient</b>	<b>Quantity</b>
Cement, lb/yd <sup>3</sup>	564
ASTM C57 Stone, lb/yd <sup>3</sup>	1123
Natural Concrete Sand, lb/yd <sup>3</sup>	1265
Water, lb/yd <sup>3</sup>	300
Resulting w/cm ratio	0.53

## FRESH CONCRETE PROPERTIES

After mixing, fresh concrete properties were measured as follows:

- Slump according to ASTM C143, *Standard Test Method for Slump of Hydraulic Cement Concrete*
- Unit weight (density) according to ASTM C138, *Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.*
- Plastic air content according to ASTM C173, *Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.*

The measured fresh concrete properties are presented in Table 4.

**Table 4 - Fresh Concrete Properties**

Property	Test Value
Measured Slump, in.	3.75
Unit Weight (Density), lb/ft <sup>3</sup>	122.0
Plastic Air, %	7.0

**HARDENED CONCRETE PROPERTIES**

A summary of the tests results conducted on hardened concrete are presented in Table 5. Note the test procedures adopted for evaluating different concrete properties were modified, if needed, per ASTM C330.

**Table 5 - Hardened Concrete Properties**

Property	Test Result	ASTM C330 Limits
ASTM C567 Equilibrium Density, lb/ft <sup>3</sup>	112.0	110 - 115
ASTM C39 Compressive Strength, psi	5290	4000 Minimum
ASTM C496 Splitting Tensile Strength, psi	490	330 Minimum
ASTM C157 Shrinkage, %	0.04	0.07 Maximum
ASTM C151 Autoclave Expansion, %	No pop outs	No pop outs
ASTM C666 Freeze-thaw Resistance, DF	Pending	Satisfactory Performance

## CONCLUSION

**The results of the testing program indicate that structural pump blend lightweight aggregate material from Amrize – Utelite plant met all limit requirements specified for physical and chemical property tests listed in ASTM C330. An amended version of this letter will be issued once ASTM C666 freeze-thaw testing is complete.**

Concrete specimens produced using structural pump blend aggregate material were evaluated for equilibrium density (ASTM C567), compressive strength (ASTM C39), splitting tensile strength (ASTM C496), pop outs (ASTM C151), freeze-thaw resistance (ASTM C666), and drying shrinkage (ASTM C157). Autoclave expansion of concrete prism specimens indicated no pop outs, indicating that concrete containing structural pump blend aggregate met the pop out requirement of ASTM C330. The calculated compressive and splitting tensile strength values were also higher than the minimum limit values imposed by ASTM C330. The calculated shrinkage at a drying age of 28 days was well below the maximum limit specified by ASTM C330.

## DISCLAIMER

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## CLOSING

Thank you for considering CTLGroup to assist you on this project. Should you have any questions, please don't hesitate to call or email.

Sincerely,  
**CTLGroup**



**Pavan Vaddey, PhD, PE**  
Senior Engineer  
Concrete and Cement-Based Materials  
[PVaddey@CTLGroup.com](mailto:PVaddey@CTLGroup.com)  
Phone: (541) 602-5859

Attachments: ASTM C330 test reports (12 pages)

### ASTM C330 Aggregate and Concrete Testing Summary

<b>Client Aggregate ID:</b>		<b>Structural Pump Blend</b>	
<b>CTLGroup Concrete Mixture ID:</b>		<b>C330 - Pump Blend</b>	
<b>Date Fabricated:</b>		<b>February 3, 2026</b>	
Material	Product	SG	lbs/yd <sup>3</sup> (SSD)
Cement	ASTM C150 Type I/II, CTLGroup - Lab Stock	3.15	564
Fine Aggregate	Pump Blend Lightweight Aggregate, Amrize, Coalville, UT	1.83	1265
Coarse Aggregate	ASTM No. 57 Stone, CTLGroup - Lab Stock	2.72	1123
Water	Potable, Mount Prospect, IL	1.00	300
<b>w/cm</b>			0.53

Chemical Admixtures	Product	SG	fl oz/cwt
Air-Entraining Admixture	Master Air AE200	1.01	0.6
High-Range Water Reducer	Master Glenium 7920	1.08	1.0

Target Properties	Design Properties
Target Slump, in.	3.00 ± 1.00
Design Air Content, %	6.0 ± 1.0%

Fresh Concrete Properties	Test Method	Test Results
Slump	ASTM C143	3.75
Plastic Air Content, %	ASTM C173	7.0
Temperature, °F	ASTM C1064	72
Fresh Density, lb/ft <sup>3</sup>	ASTM C138	122.0

Hardened Concrete Performance	Test Method	Curing	Age	Test Results
Calculated Equilibrium Density, lb/ft <sup>3</sup>	ASTM C567	--	Per ASTM C567	112.0
Compressive Strength, psi	ASTM C39	100% RH, 73°F	28 days	5,290
Splitting Tensile Strength, psi	ASTM C496	73°F/100% RH 7d, 73°F/50% RH 21d drying	28 days	490
Drying Shrinkage, %	ASTM C157/ASTM C330	73°F/100% RH 7d, 100°F/32% RH 28d drying	35 days	0.04
Popouts	ASTM C151/ASTM C330	73°F/100% RH 1d	--	No Popouts

ASTM C330 Specification Requirements for Aggregate Testing				
Property	Test Method	ASTM C330 Requirement	Result	Requirement Met?
Gradation	ASTM C136	ASTM C330 Table 1 Combined Fine and Coarse Aggregate	See Report	<b>Yes</b>
Specific Gravity (SSD)	ASTM C128	--	1.83	--
Absorption	ASTM C128	--	19.1%	--
Organic Impurities	ASTM C40	No darker color upon test	No Impurities	<b>Yes</b>
Staining	ASTM C641	Stain Index of 60 or less	0	<b>Yes</b>
Loss on Ignition	ASTM C114	No greater than 5%	1.8%	<b>Yes</b>
Clay Lumps and Friable Particles	ASTM C142	No greater than 2% by dry mass	0.3%	<b>Yes</b>
Loose Bulk Density	ASTM C29	No greater than 65 lbs/ft <sup>3</sup>	63 lbs/ft <sup>3</sup>	<b>Yes</b>

ASTM C330 Specification Requirements for Concrete Testing				
Property	Test Method	ASTM C330 Requirement	Result	Requirement Met?
Compressive Strength	ASTM C39 / ASTM C330	No less than 4000 psi at 28 days	5,290 psi	<b>Yes</b>
Splitting Tensile Strength	ASTM C496 / ASTM C330	No less than 330 psi at 28 days	490 psi	<b>Yes</b>
Drying Shrinkage	ASTM C157 / ASTM C330	No greater than 0.07% at 28 days dry	0.04%	<b>Yes</b>
Popouts	ASTM C151 / ASTM C330	No Popouts	No Popouts	<b>Yes</b>
Freeze-thaw Resistance	ASTM C666 / ASTM C330	Satisfactory Performance	Pending	Pending

**Notes:**

- 1) This report may not be reproduced except in its entirety. The report refers specifically to the tested specimens.
- 2) Concrete test specimens were fabricated by CTLGroup using lab-stocked materials and light weight aggregate provided by the client.
- 3) THIS REPORT IS NOT INTENDED FOR CONSTRUCTION OR SUBMITTAL**

**ASTM C136 — Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate**

Client Sample ID	Structural Pump Blend
CTLGroup Sample ID	6019904
Sample Source	Amrize - Utelite Plant
Aggregate Type	Combined Fine and Coarse
Weight of Oven Dry Sample, g	412.00

Sieve Size	Retained on Individual Sieve, grams	Retained on Individual Sieve, %	Cumulative Retained on Sieve, %	Cumulative Passing Sieve, %	ASTM C330 9.5 mm to 0 Cumulative Passing Limits, %
½"	0.0	0.0	0.0	100.0	100
¾"	10.1	2.4	2.4	97.6	90 - 100
#4	74.5	18.1	20.5	79.5	65 - 90
#8	85.4	20.7	41.3	58.7	35 - 65
#16	84.1	20.4	61.7	38.3	--
#30	68.1	16.5	78.2	21.8	--
#50	41.4	10.0	88.2	11.8	10 - 25
#100	21.6	5.3	93.5	6.5	5 - 15
#200	14.3	3.5	97.0	3.0	0 - 10
Pan	12.5	3.0	100.0	0.0	--

**Notes:**

1. This report may not be reproduced except in its entirety.
2. The results refer specifically to the submitted sample.
3. The test sample was received on January 12, 2026.
4. Testing was conducted on January 26, 2026.

**ASTM C142 — Standard Test Method for Clay Lumps and Friable Particles in Aggregates**

Client Sample ID	Structural Pump Blend
CTLGroup Sample ID	6019904
Sample Source	Amrize - Utelite Plant
<b>Clay Lumps and Friable Particles</b>	<b>0.3%</b>

**Notes:**

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3. The test sample was received on January, 12, 2026.
4. Testing was conducted on January, 29, 2026.
5. The tested aggregate was a combination of coarse and fine aggregate. The reported test value corresponds to the aggregates falling in the size range of 3/8" to #16 sieves.

**ASTM C128 — Standard Test Method for Density, Relative Density (Specific Gravity),  
and Absorption of Fine Aggregate**

Client Sample ID	Structural Pump Blend
CTLGroup Sample ID	6019904
Sample Source	Amrize - Utelite Plant
Aggregate Type	Combined Fine and Coarse

Relative Density (Specific Gravity) at OD <sup>1</sup>	1.54
Relative Density (Specific Gravity) at SSD <sup>2</sup>	1.83
Apparent Relative Density (Apparent Specific Gravity)	2.18

<sup>1</sup> *Oven Dry*

<sup>2</sup> *Saturated-Surface Dry*

Oven-Dry (OD) Density	96.0 lb/ft <sup>3</sup>
Saturated Surface Dry (SSD) Density	114.0 lb/ft <sup>3</sup>
Apparent Saturated Surface Dry (SSD) Density	135.5 lb/ft <sup>3</sup>

Absorption, %	19.1%
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3. The test sample was received on January, 12, 2026.
4. Testing was conducted from January, 23, 2026 to January, 27, 2026.
5. Density was calculated on the basis of water at 75°F.

**ASTM C29 — Bulk Density ("Unit Weight") and Voids in Aggregates**

Client Sample ID	Structural Pump Blend
CTLGroup Sample ID	6019904
Sample Source	Amrize - Utelite Plant
Aggregate Type	Combined Fine and Coarse
Procedure	Shoveling
Size of Measure	0.50 ft <sup>3</sup>
<b>Bulk Density</b>	<b>63 lbs/ft<sup>3</sup></b>

**Notes:**

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3. The test sample was received on January, 12, 2026.
4. Testing was conducted on January, 26, 2026.

**ASTM C40 — Organic Impurities in Fine Aggregates for Concrete**

<b>Client Sample ID</b>	Structural Pump Blend
<b>CTLGroup Sample ID</b>	6019904
<b>Sample Source</b>	Amrize - Utelite Plant

<b>Sample Reduction Method</b>	Splitter
<b>Procedure</b>	Standard Color Solution

	<b>Organic Color Plate No. 1</b>
<b>Results</b>	<b>Does Not Contain Injurious Organic Impurities</b>

Test Results Interpretation (per Section 11.1):

*When a sample subjected to this procedure produces a color darker than the standard color, Circular Disk No. 14 or Organic Plate No. 3 (Gardner Color Standard No. 14), the fine aggregate under test shall be considered to possibly contain injurious organic impurities. It is advisable to perform further tests before approving the fine aggregate for use in concrete.*

**Notes:**

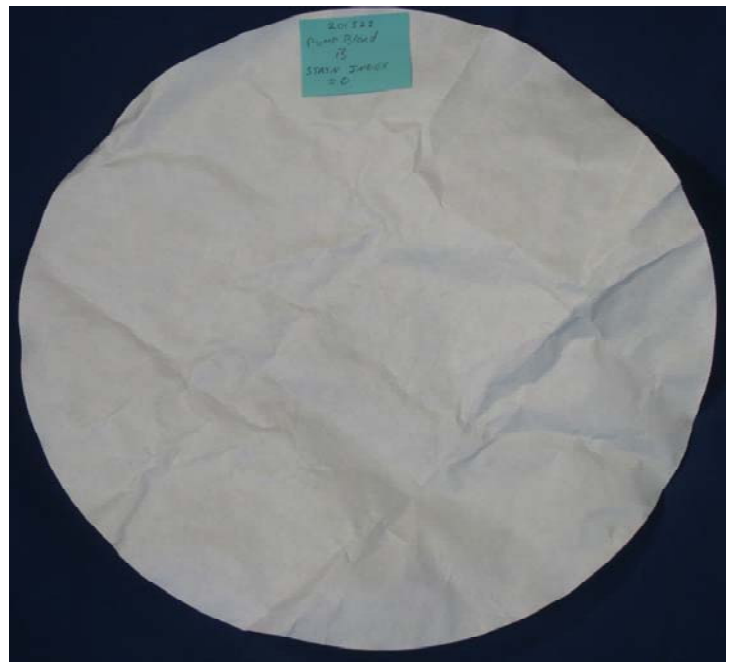
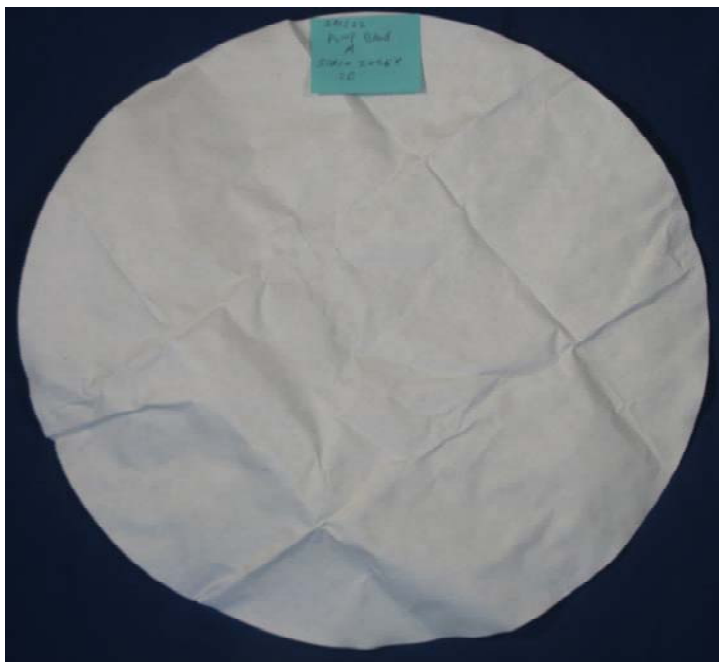
1. This report may not be reproduced except in its entirety.
2. This report represents specifically to the sample provided.
3. The test sample was received on January, 12, 2026.
4. Testing was conducted on January, 26, 2026.

Client: **Amrize - Utelite Plant**  
Project: **ASTM C330 Qualification**  
Contact: **Ken Nunley**  
Date Reported: **February 2, 2026**

CTLGroup Project No: **201522**  
CTLGroup Project Manager: **P. Vaddey**  
Technician: **T. Hercules**  
Approved: **B. Manaugh**

**ASTM C641**  
**Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregate**

<b>Client Sample Identification</b>	Structural Pump Blend
<b>CTLGroup Sample Identification</b>	6019904
<b>Sample Source</b>	Amrize - Utelite Plant
<b>Procedure</b>	Visual Procedure
<b>Stain Index</b>	<b>0</b>



**Notes:**

1. Results refer specifically to the sample submitted.
2. Visual rating based on standard index images presented in ASTM C641.
3. This report may not be reproduced except in its entirety.



Client: **Amrize - Utelite Plant**  
Project: **ASTM C330 Qualification**  
Contact: **Ken Nunley**  
Date Reported: **February 10, 2026**

CTLGroup Project No: **201522**  
CTLGroup Project Manager: **P. Vaddey**  
Technician: **T. Hercules**  
Approved: **B. Manaugh**

**ASTM C567**  
**Standard Test Method For Determining Density of Structural Lightweight Concrete**

**Mixture ID: C330 - Pump Blend**

Sample	Mass of Oven Dry Cylinder, lbs	Mass of Saturated Surface-Dry Cylinder, lbs	Apparent Mass of Suspended- Immersed Cylinder, lbs	Measured Oven-Dry Density, lb/ft <sup>3</sup>	Calculated Equilibrium Density, lb/ft <sup>3</sup>
C330 - A	21.9	24.8	12.4	109.7	112.7
C330 - B	21.7	24.7	12.3	108.6	111.6
C330 - C	21.8	24.8	12.4	109.1	112.1
<b>Average (Rounded to the nearest 0.5 lbs/ft<sup>3</sup>)</b>				<b>109.0</b>	<b>112.0</b>

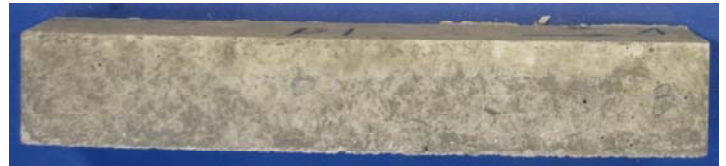
**Notes:**

1. This report may not be reproduced except in its entirety.
2. Specimens were cast by CTLGroup with materials provided by others.

**ASTM C151 as Modified by ASTM C330  
Test for Popout Materials**

Client Mixture Identification	N/A
CTLGroup Mixture Identification	C330 - Pump Blend
Aggregate Sample Source	Amrize - Utelite Plant
Aggregate Description	Combined Coarse and Fine
<b>Result</b>	<b>No Popouts Observed</b>

**Specimen surfaces before Autoclave Testing**



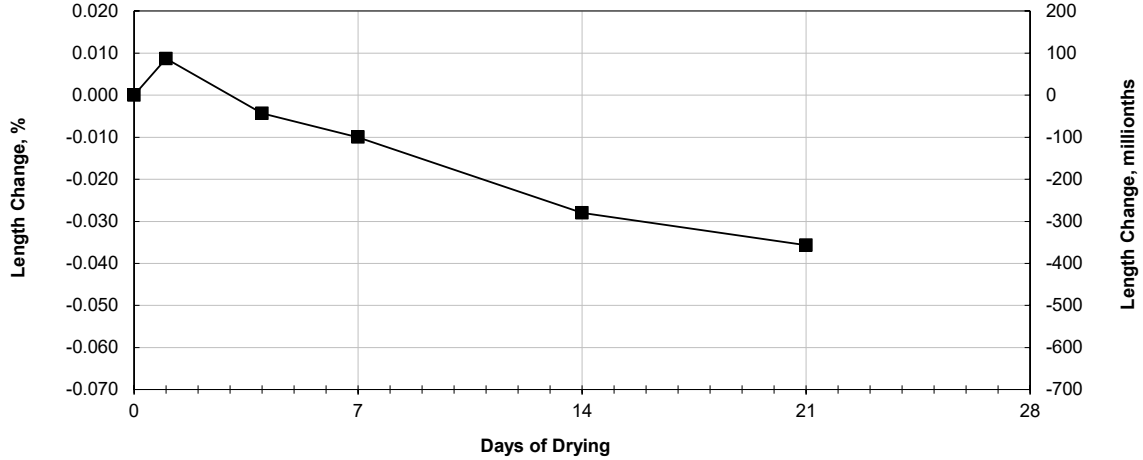
**Specimen surfaces after Autoclave Testing**



**Notes:**

1. Test specimen was fabricated in accordance with ASTM C330. Test specimen was a 2x2x11.25-in. nominal prism.
2. Autoclave testing was performed in accordance with ASTM C151.
3. Results refer specifically to the aggregate sample submitted.
4. This report may not be reproduced except in its entirety.

**ASTM C157/C157M as Modified by ASTM C330**  
**Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete**  
**Mixture ID: C330 - Pump Blend**



Date	Age, days	Days of Drying	Condition	Comparator Measurement, in.			Length Change, %			Average, %	Length Change, millionths			Average, millionths
				A	B	C	A	B	C		A	B	C	
2/10/2026	7	0	Start dry	-0.0828	-0.1016	-0.0895	0.000	0.000	0.000	<b>0.000</b>	0	0	0	<b>0</b>
2/11/2026	8	1	Dry	-0.0819	-0.1007	-0.0887	0.009	0.009	0.008	<b>0.009</b>	90	90	80	<b>87</b>
2/14/2026	11	4	Dry	-0.0832	-0.1021	-0.0899	-0.004	-0.005	-0.004	<b>-0.004</b>	-40	-50	-40	<b>-43</b>
2/17/2026	14	7	Dry	-0.0837	-0.1028	-0.0904	-0.009	-0.012	-0.009	<b>-0.010</b>	-90	-120	-90	<b>-100</b>
2/24/2026	21	14	Dry	-0.0855	-0.1045	-0.0923	-0.027	-0.029	-0.028	<b>-0.028</b>	-270	-290	-280	<b>-280</b>
3/3/2026	28	21	Dry	-0.0864	-0.1051	-0.0931	-0.036	-0.035	-0.036	<b>-0.036</b>	-360	-350	-360	<b>-357</b>
3/10/2026	35	28	Dry	-0.0864	-0.1051	-0.0931	-0.036	-0.035	-0.036	<b>-0.036</b>	-360	-350	-360	<b>-357</b>

**Notes:**

- Specimens were fabricated by CTLGroup in accordance with the requirements of ASTM C330.
- Test specimens were 3x3x11.25-in. concrete prisms.
- After demolding, specimens were stored at 73°F ± 3°F and 100% RH for 7 days, then stored in a controlled environment kept nominally at 100°F ± 3°F and 32 ± 4% RH for the remainder of the test.
- Length change calculated based on specimen length at the start of drying (at the age of 7 days).
- This report might not be reproduced except in its entirety.

**ASTM C39 and AASHTO T 22**  
**Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens**

**Specimen Identification**

CTLGroup Mixture Identification	C330 - Pump Blend		
Client Mixture Identification	N/A		
Casting Date	2/3/2026	2/3/2026	2/3/2026
Test Date / Time	3/3/2026	3/3/2026	3/3/2026
Loading Rate, psi/sec	35	35	35

**Concrete Description**

Concrete Age at Test, days	28	28	28
Moisture Condition at Test	SSD	SSD	SSD
Curing Conditions (Temp/RH)	73°F / 100% RH	73°F / 100% RH	73°F / 100% RH
Cylinder End Preparation	Ground	Ground	Ground

**Concrete Dimensions**

Diameter 1, in.	4.00	4.02	4.02
Diameter 2, in.	4.00	4.01	4.04
Length, in.	7.95	7.90	7.94
Average Diameter, in.	4.00	4.02	4.03
Length / Diameter (L/D)	1.99	1.97	1.97
Cross-Sectional Area, in <sup>2</sup>	12.57	12.69	12.76

**Compressive Strength and Fracture Pattern**

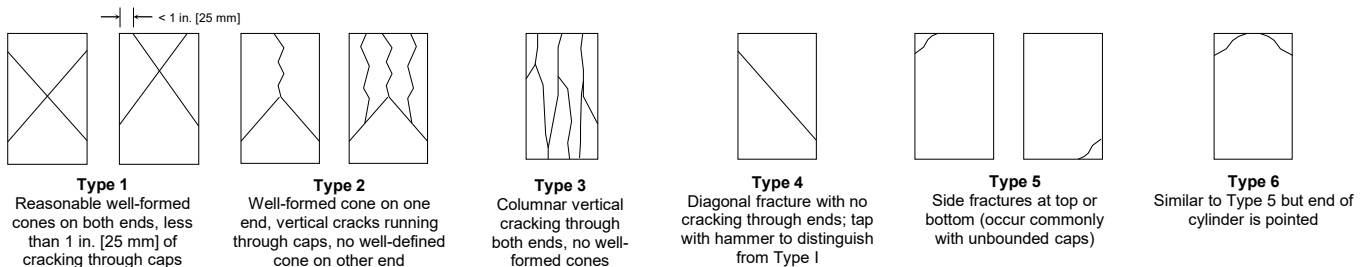
Maximum Load, lb	67,369	67,126	66,497
Compressive Strength, psi	5,360	5,290	5,210
Fracture Pattern	Type 4	Type 1	Type 2

<b>Average Compressive Strength, psi</b>	<b>5,290</b>
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**Notes:**

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2. The results specifically refer to the tested specimens.
3. Specimens were cast by CTLGroup. Mixture proportions are summarized in ASTM C330 summary sheet.
4. One day after cast, specimens were stored in moist room maintained at 73°F until testing.

**Schematic of Typical Fracture Patterns**





Client: **Amrize - Utelite Plant**  
 Project: **ASTM C330 Qualification**  
 Contact: **Ken Nunley**  
 Date Reported: **March 3, 2026**

CTLGroup Project No: **201522**  
 CTLGroup Project Manager: **P. Vaddey**  
 Technician: **M. Klaric**  
 Approved: **R. Marrero**

**ASTM C496  
 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens**

**Specimen Identification**

CTLGroup Mixture Identification	C330 - Pump Blend							
Client Mixture Identification	N/A							
Casting Date	2/3/2026	2/3/2026	2/3/2026	2/3/2026	2/3/2026	2/3/2026	2/3/2026	2/3/2026
Test Date	3/3/2026	3/3/2026	3/3/2026	3/3/2026	3/3/2026	3/3/2026	3/3/2026	3/3/2026
Type of Specimen	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder	Concrete Cylinder
Defects in Specimen	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Concrete Description**

Concrete Age at Test, days	28	28	28	28	28	28	28	28
Curing Conditions	Per ASTM C496	Per ASTM C496	Per ASTM C496	Per ASTM C496	Per ASTM C496	Per ASTM C496	Per ASTM C496	Per ASTM C496
Moisture Condition at Test	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

**Concrete Dimensions**

Diameter 1, in.	5.98	6.00	6.00	5.97	5.99	5.99	6.00	5.98
Diameter 2, in.	6.03	6.08	6.06	6.00	6.07	6.05	6.08	6.00
Diameter 3, in.	6.02	6.06	6.07	6.01	6.05	6.06	6.06	6.02
Length 1, in.	12.05	12.04	12.12	12.08	12.06	12.05	12.05	12.06
Length 2, in.	12.08	12.05	12.01	12.04	12.10	12.09	12.03	12.04
Average Diameter, in.	6.01	6.05	6.04	6.00	6.04	6.04	6.05	6.00
Average Length, in.	12.10	12.00	12.10	12.10	12.10	12.10	12.00	12.10

**Strength and Fracture Pattern**

Maximum Load, lbf	58,794	46,609	58,969	56,847	59,655	63,120	47,984	54,054
Splitting Tensile Strength, psi	515	410	515	500	520	550	420	475
Type of Fracture	Vertical Center	Vertical Center	Vertical Center	Vertical Center	Vertical Center	Vertical Center	Vertical Center	Vertical Center
Estimated Proportion of Coarse Aggregate Fractured during Test	100%	100%	100%	100%	100%	100%	100%	100%

<b>Average Splitting Tensile Strength</b>	<b>490 psi</b>
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**Notes:**

- Specimens were fabricated by CTLGroup.
- Mixture proportions are summarized in ASTM C330 summary sheet.
- One day after cast, specimens were stored in moist room maintained nominally at 73°F until test.
- This report may not be reproduced except in its entirety. The results refer specifically to the submitted specimens.