



TYPICAL SIEVE ANALYSES

TYPICAL SIEVE ANALYSIS - Coarse Aggregate - 3/4" - No. 4 Size

Sieve No.	Percent Retained	Percent Passing	ASTM C 330
3/4	3.0	97	90-100
1/2	33	64	--
3/8	35	29	10-50
No. 4	27	2	0-15
No. 200	1.3	0.7	0-10

Fineness Modulus 7.08
 ASTM Requirement < 55 lb./ft.3
 Dry Loose Bulk Density lb./cu. ft. 40.5

TYPICAL SIEVE ANALYSIS - Intermediate Aggregate - 3/8" - No. 8 Size

Sieve No.	Percent Retained	Percent Passing	ASTM C 331
1/2	0.0	100	100
3/8	0.0	100	80-100
No. 4	62.5	37.5	5-40
No. 8	36	1.5	0-20
No. 16	0.8	0.7	0-10
No. 200	0.2	0.5	0-10

Fineness Modulus 5.61
 ASTM Requirement < 55 lb./ft.3
 Dry Loose Bulk Density lb./cu. ft. 42.0

TYPICAL SIEVE ANALYSIS - Fine Aggregate- No. 4 - 0 Size

Sieve No.	Percent Retained	Percent Passing	ASTM C 330 C 331
3/8"	0.0	100	100
No. 4	0.0	100	85-100
8	11.0	89	---
16	29	60	40-80
30	22	39	--
50	14	24	10-35
100	8	16	5-25

Fineness Modulus 2.72
 ASTM Requirement < 70 lb./ft.3
 Dry Loose Bulk Density lb./cu. ft. 54.

TYPICAL SIEVE ANALYSIS - Combined Fine and Coarse Aggregate - 3/8" - 0 Size



Sieve No.	Percent Retained	Percent Passing	ASTM C 330
1/2	0	100	100
3/8	2.0	98	90-100
4	13.0	85	65-90
8	13.0	72	35-65
16	27.0	45	--
30	16.0	29	--
50	12.0	17	10-25
100	8.0	9	5-15
200	5.0	4	0-10

Fineness Modulus 3.89
 Dry Loose Bulk Density lb./cu. ft. 56.5
 ASTM REQUIREMENT < 65 lb./ft.3

AVERAGE DENSITIES

	Loose Dry	ASTM Requirement
Coarse 3/4" - No. 4	40.5	55
Intermediate 3/8" - No. 8	42.0	55
Fines No. 4 - 0	54.6	70
Block Mix 3/8" - 0	56.5	65

SPECIFIC GRAVITY

	3/4"	3/8"	No. 4 - 0
Specific Gravity (0% Moisture)	1.25	1.30	1.55

ASTM SPECIFICATIONS

ASTM SPECIFICATIONS - C 330 Lightweight Aggregates for Structural Concrete

	3/4" - No. 4	3/8" - No. 8	ASTM C 330
Organic Plate	--	--	
Staining	None	None	
Loss on Ignition, %	.3	.3	5 MAX
Friable particles, %	.2	.2	2% MAX
Clay Lumps	None	None	2% MAX
Popouts	None	None	
Drying Shrinkage, %			
28 Days	.056	.10 Max.	
100 Days	.069		



ASTM SPECIFICATIONS - C 331 Lightweight Aggregates for Concrete Masonry Units

	Block Mix	ASTM C 331
Organic Plate	-	
Staining	None	
Loss on Ignition, %	.7	5 Max.
Friable particles, %	.1	2% Max.
Clay Lumps	None	2% Max.
Drying Shrinkage, %		
28 Days	.043	.10 Max.
100 Days	.044	

DURABILITY FACTOR DATA (Freeze Thaw Test)

Laboratory tests were conducted with Norlite concrete in accordance with the Standard Method of Testing for Resistance of Concrete to Rapid Freezing and Thawing, ASTM Designation C 666 (Procedure B, Rapid Freezing in Air and Thawing in Water).

Test Samples:	3" x 4" x 16" Norlite Concrete Bars
Curing Conditions:	Set A - 14 days moist and 14 days dry
	Set B - 28 days moist
Test Requested:	Freeze in air and thaw in water
Duration of Test:	300 Cycles
Test Method:	Conrad Freeze and Thaw Machine programmed to meet cabinet temperatures as called for in the Freeze and Thaw Procedure B in ASTM C 666 71.
Average Durability Factor	
(Based on 300 cycles)	Set A 93%
	Set B 100%

CHEMICAL ANALYSIS

Silica	(SiO ₂)	64.20%
Alumina	(Al ₂ O ₃)	20.24%
Iron Oxide	(Fe ₂ O ₃)	4.86%
Titanium Oxide	(TiO ₂)	.70%
Calcium Oxide	(CaO)	2.00%
Magnesium Oxide	(MgO)	3.62%
Alkalies		3.16%
Sulphur Trioxide	(So ₃)	.69%



Loss on Ignition		.70%
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SOUNDNESS ANALYSES

SOUNDNESS ANALYSIS -Nominal No. 4 - 0 Size

ASTM Specification: C 33 for Concrete Aggregate - Fine Aggregate

MAGNESIUM SULFATE - 5 CYCLES

Sieve Size	% Size	% Fraction Loss	% Size Loss
8	16.6	4.1	0.68
16	30.6	2.2	0.67
30	27.2	2.2	0.60
50	13.4	8.0	1.07
100	6.0	6.1	0.36
		Total Loss	3.38

ASTM maximum allowable for concrete
Fine Aggregate 15%

SODIUM SULFATE - 5 CYCLES

Seive Size		% Retained Individual	Actual % Loss	Weighted Average Loss
Passing	Retained			
No. 4	No. 8	15.5	1.0	0.16
8	16	15.5	1.0	0.16
16	30	20.5	4.0	0.82
30	50	20.0	4.0	0.82
50	100	13.0	--	--
100	Pan	15.5	--	--
	Total	100.0		
			Total Loss	2.34

Specification Limit 10% Maximum

SOUNDNESS ANALYSIS - Nominal 3/4" - No. 4 Size

ASTM Specification: C 33 for Concrete Aggregate- Coarse Aggregate

MAGNESIUM SULFATE - 5 CYCLES

Sieve Size	% Size	% Fraction Loss	% Size Loss
3/8"	79.7	0.4	0.3
No. 4	19.0	0.9	0.2



		Total Loss	0.5
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ASTM maximum allowable for concrete
Coarse aggregate 18%

SODIUM SULFATE - 5 CYCLES

Seive Size		% Retained Individual	Actual % Loss	Weighted Average Loss
Passing	Retained			
3/4"	1/2"	22.0	2.1	0.46
1/2"	3/8"	33.5	0.8	0.27
3/8"	No. 4	41.5	0.3	0.12
No. 4	No. 8	1.5	-	-
No. 8	Pan	1.5	-	-
	Total	100.0		0.85

Specification Limit 10% Maximum