DIAMOND
DESIGN PRECAST, Inc.

SUBMITTAL PACKAGE

PRECAST PRODUCTS | DOCUMENT INDEX

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741 Marine Drive, Bellingham, WA 98225 www.geotest-inc.com
20611 67th Ave. NE, Unit A, Arlington, WA 98223
phone: (360) 733.7318 toll free: (888) 251.5276 fax: (360) 733.7418

CONCRETE MIX DESIGN - TEST REPORT

PROJECT:	**Diamond Precast Mix Design**	JOB #:	**13-0619**
ADDRESS:	**19405 63rd Avenue NE, Arlington, WA**	REPORT #:	**CB001**
CLIENT:	**Diamond Precast Products, LLC**	DATE:	**11-4-13**
		PAGE #:	**1 of 3**

Mix #: **6.0 Sack w/ Air**

Mix Design:

Material	Source	Batch Weight Lb	Volume Ft^3
Water	-	254	4.07
Cement	Lafarge – Type III	564	2.87
Coarse Aggregate, SSD AASHTO Grading #8	Cemex, Everett	1700	10.05
Fine Aggregate, SSD WSDOT Class #2	Cemex, Everett	1432	8.66
Air Entrainment (0.25 to 4 oz/cwt)	MB-AE 90	5.0%	1.35
HRWRA (2 to 15 oz/cwt)	MB Glenium 7500	-	-
Total		3950	27.00

W/C Ratio:	0.45
Unit Weight, lb/ft^3:	146.30
Design Slump, in	1 to 2
Design Slump w/ HRWRA, in	4 to 7

Copies: Diamond Precast Products, LLC

Grant Richardson
Reviewed by

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The above test results relate only to the sample (or location) tested.

CERTERRA

Diamond Design Precast, Inc.
19405 63rd Ave NE
Arlington, WA 98223

June 30, 2026

COMPRESSIVE STRENGTH TEST REPORT

Project: 10-252641-0 Diamond Design Precast - General Services 2025
Material: Concrete Cylinder, ASTM C39
Placement Location: DIAMOND DESIGN PRECAST FACILITY

Sample Date: 06/02/2026
Sampled By: Casey DeBellis

SAMPLE INFORMATION

Set ID:	1	Time Cast (24 Hr):	12:00
Unit Weight, ASTM C138 (pcf):	N/I	Date Received:	06/04/2026
Slump, ASTM C143 (inch):	N/I	Supplier:	MA
Air Content, ASTM C231 (%):	N/I	Truck/Ticket #	NA
Ambient Temperature (°F):	N/I	Mix Design #	NA
Mix Temperature, ASTM C1064 (°F):	N/I	Req'd Strength (psi):	2,500 @ 28 Days

Specimen sampling & fabrication method:	☒ ASTM C172/C31	☐ Performed by others
Specimens tested in accordance with:	☒ ASTM C39	☐ Alternate method (see remarks)
Specimens prepared in accordance with:	☐ ASTM C617	☒ ASTM C1231
Testing Lab Location:	Arlington	
Testing Technician:	Meng Her	

TEST INFORMATION

Identification	Age	Date Tested	Diameter (in)	Area (in²)	Maximum Load (lb)	Compressive Strength (psi)	Fracture Type
260604097	7 Days	06/09/2026	4.00	12.57	53,860	4,280	Type 5
260604098	28 Days	06/30/2026	4.00	12.57	71,020	5,650	Type 5
260604099	28 Days	06/30/2026	4.00	12.57	74,470	5,920	Type 5

AVERAGE 28-DAY COMPRESSIVE STRENGTH (PSI): 5,790

Material ☒ MET ☐ DID NOT MEET
THE REQUIREMENTS OF THE PROJECT DOCUMENTS.

REMARKS:

Casey DeBellis
Signature
June 30, 2026
Date
Casey DeBellis - Supervisor
Print Name – Title

Dispatch # 26-072024
Project # 10-252641-0/01

Results relate only to the items tested. Evaluation is based on project documents available at the time of testing. Specimens were in good/normal condition unless noted otherwise. Report shall not be reproduced except in full. See daily for supplemental info.

KARBONBAR

LIGHTWEIGHT, ULTRA-STRONG, & NON-CORROSIVE COMPOSITE REINFORCING BAR

MATERIAL SAFETY DATA SHEET (MSDS)

INFORMATION & EMERGENCY CONTACT:
KARBON BAR
P.O. BOX 8127
BEND, OR 97701
+1 (760) 881-6627

SYNONYMS: FIBERGLASS REBAR, EPOXY REBAR, FRP REBAR, NANOREBAR

SEC. II - HAZARDOUS INGREDIENTS / IDENTITY / INGREDIENT COMPOSITION INFORMATION:

CHEMICAL NAME	*CAS NUMBER*	*% RANGE*	*OSHA PEL*
EPOXY-BASED RESIN	N/A	16.75%	N/A
FIBEROUS GLASS	N/A	82%	N/A
GRAPHENE	N/A	1.25%	N/A

SEC. III - PHYSICAL / CHEMICAL CHARACTERISTICS

APPEARANCE & ODOR	*SOLUBILITY IN WATER*	*SPECIFIC GRAVITY* (H_2O=1)	*EVAPORATION RATE* (BUTYLACETATE=1)	*BOILING POINT*	*VAPOR DENSITY* (AIR =1)	*CHEMICAL FORMULA*	*VAPOR PRESSURE* (MM Hg.)	*MELTING POINT*
GRAY SOLID	INSOLUBLE	2.0	N/A	N/A	N/A	N/A	N/A	212°F

SEC. IV - FIRE & EXPLOSION HAZARD DATA

- ***FLASH POINT*** *(METHOD USED):* N/A
- ***EXTINGUISHING MEDIA:*** CARBON DIOXIDE DRY CHEMICAL (SMALL FIRES) / FOAM AND WATER FOG (LARGE FIRES)
- ***SPECIAL FIRE FIGHTING PROCEDURES:*** BURNING ROD WILL CREATE AN ACRID HEAVY BLACK SMOKE AND ODOR THAT IS EXTREMELY OFFENSIVE. FIRE FIGHTERS MUST WEAR SELF-CONTAINED BREATHING APPARATUS (SCBA). OTHERS MUST SEEK FRESH AIR IMMEDIATELY

SEC. V - REACTIVITY DATA

- ***CONDITIONS TO AVOID:*** EXPOSURE TO OPEN FLAMES
- ***HAZARDOUS DECOMPOSITION PRODUCTS:*** CARBON MONOXIDE, CARBON DIOXIDE, ORGANIC ACID LMW, HYDROCARBONS
- ***STABILITY:*** N/A
- ***HAZARDOUS POLYMERIZATION:*** WILL NOT OCCUR
- ***INCOMPATIBILITY:*** NONE KNOWN

SEC. VII - PRECAUTIONS FOR SAFE HANDLING & USE

- ***HANDLING & STORING:*** USE EYE PROTECTION AND GLOVES WHEN HANDLING: + MASK WHEN CUTTING
- ***WASTE DISPOSAL METHOD:*** DISPOSE OF AS SOLID WASTE IN ACCORDANCE WITH LOCAL, STATE, & FED REGULATIONS. NOT CONSIDERED HAZARDOUS WASTE UNDER FEDERAL RCRA REGULATIONS
- ***STORAGE:*** NO SPECIAL STORAGE CONSIDERATIONS NEEDED

SEC. VI HEALTH HAZARD DATA

	ROUTE OF EXPOSURE	*EMERGENCY & FIRST AID PROCEDURE*	*SEC. VIII - CONTROL MEASURES*
INHALATION	FIBERGLASS DUST CAN CAUSE RESPIRATORY IRRITATION & PULMONARY EDEMA	MOVE VICTIM TO FRESH AIR. IF BREATHING HAS STOPPED, ADMINISTER CPR. CALL A PHYSICIAN.	NO RESPIRATORY PROTECTION REQUIRED. IF AIRPORNE DUST CONCENTRATIONS EXCEED PERMISSIBLE EXPOSURE LEVELS, USE PROTECTION FOR NUISANCE DUST. USE LOCAL EXHAUST IF NECESSARY TO PREVENT NUISANCE DUST. **WHEN CUTTING WITH SAW, WEAR A DUST MASK.**
INGESTION	INGESTION OF FIBERGLASS OR FIBERGLASS DUST IS UNLIKELY	CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY. IF PROFESSIONAL ADVICE UNAVAILABLE, **DO NOT INDUCE VOMITING** OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON	
SKIN	FIBERGLASS DUST CAN CAUSE RASH, ITCHING, CONJUNCTIVITIS, COUGHING, & SNEEZING	WASH AFFECTED AREA WITH SOAP & WATER. WASH CONTAMINATED CLOTHING BEFORE RE-USE. LONG PANTS AND GOOD PERSONAL HYGIENE WILL MAXIMIZE COMFORT	**WEAR PROTECTIVE GLOVES** TO REDUCE IRRITATION FROM DUST OR SLIVERS
EYE	PROLONGED OR REPEATED EXPOSURE TO FIBERGLASS DUST CAN CAUSE PAIN & IRRITATION OF EYES	FLUSH EYES WITH WATER AND SEEK IMMEDIATE MEDICAL ATTENTION	**WEAR SAFETY GLASSES** WITH SIDE SHIELDS

⚠ CALIFORNIA PROPOSITION 65 WARNING
WARNING: THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.
ADVERTENCIA: ESTE PRODUCTO CONTIENE PRODUCTOS QUÍMICOS RECONOCIDOS POR EL ESTADO DE CALIFORNIA QUE PROVOCAN CÁNCER, DEFECTOS DE NACIMIENTO U OTROS DAÑOS REPRODUCTIVOS. ⚠

1.888.251.5276
Bellingham | Arlington | Oak Harbor
www.geotest-inc.com

Submittal Date: 12/2/2021

Job Number: 21-0218
Job Name: Reece Aggregates & Recycling - General Services 2021
Client: Reece Aggregates & Recycling
Address: 5802 Cemetary Road, Arlington, WA 98223

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 2169
Sample Date: 11/29/2021

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

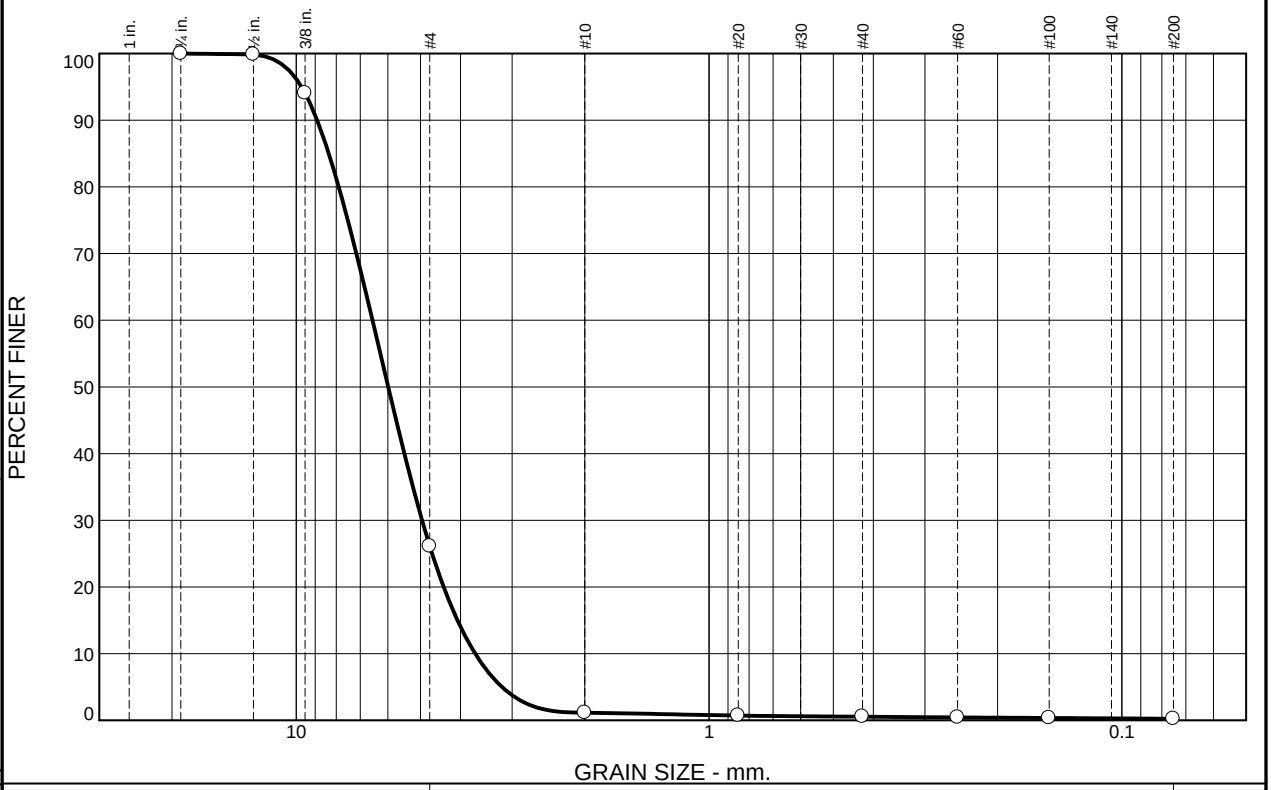
Sincerely,



David Bufalini, Supervising Lab Technician
daveb@geotest-inc.com
360.410.8170 (c)
741 Marine Drive, Bellingham, WA 98225

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Sieve Analysis Test Report - ASTM C136/C117



% Gravel		% Sand			% Fines
Coarse	Fine	Coarse	Medium	Fine	Silt
0	74	25	0	1	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	100		
3/8"	94		
#4	26		
#10	1		
#20	1		
#40	1		
#60	0		
#100	0		
#200	0.2		

* (no specification provided)

Material Description

3/8 Pea Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 8.9009 D_{85}= 8.3420 D_{60}= 6.5365
D_{50}= 5.9872 D_{30}= 4.9581 D_{15}= 4.0696
D_{10}= 3.6863 C_u= 1.77 C_c= 1.02

Classification

USCS= GP AASHTO=

Remarks

No specification provided.

Location: Reece Aggregates & Recycling (D-355) - Sampled from Pit Stockpile
Sample Number: 2169 **Date:** 12/2/2021

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Client: Reece Aggregates & Recycling
Project: Reece Aggregates & Recycling - General Services 2021
5802 Cemetary Road, Arlington, WA 98223
Project No: 21-0218 **Figure** SA009

Tested By: RB **Checked By:** DB

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Submittal Date: 12/2/2021

Job Number: 21-0218
Job Name: Reece Aggregates & Recycling - General Services 2021
Client: Reece Aggregates & Recycling
Address: 5802 Cemetary Road, Arlington, WA 98223

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 2170
Sample Date: 11/29/2021

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	Pass	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

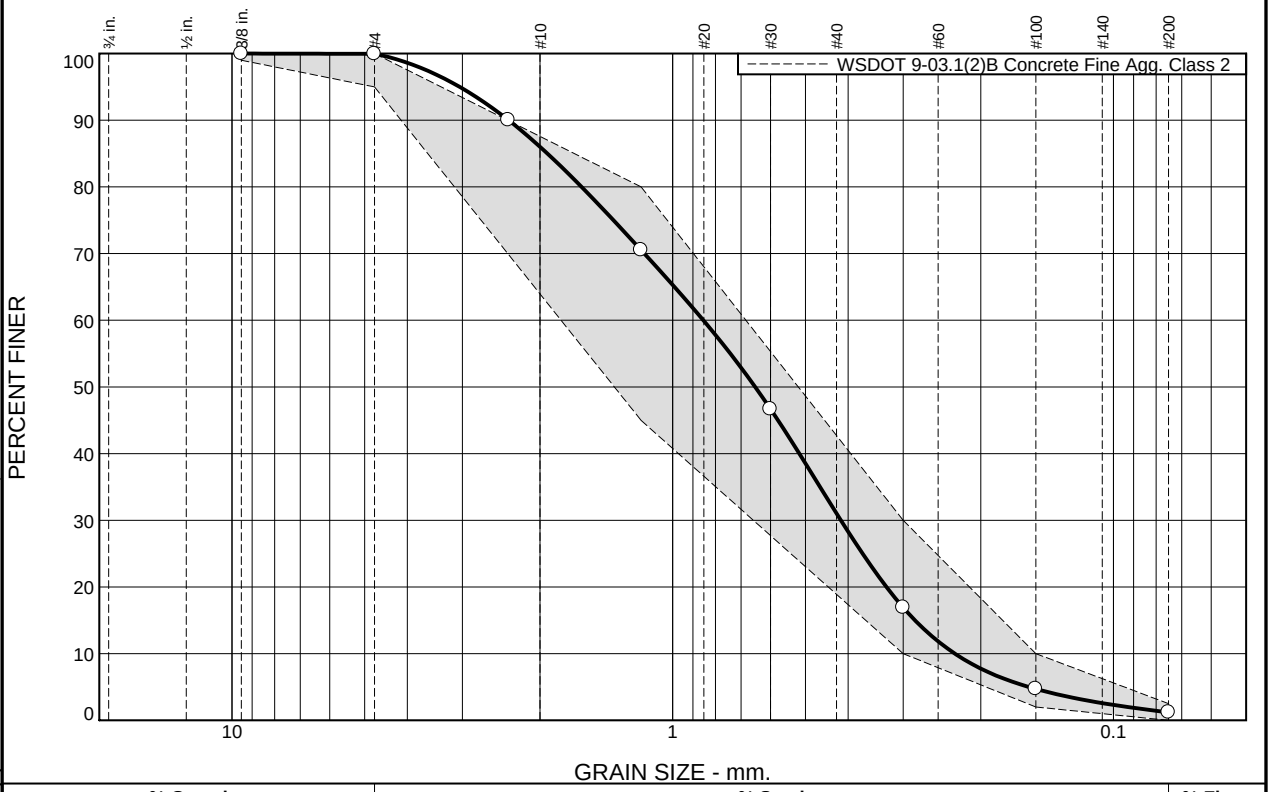
Sincerely,



David Bufalini, Supervising Lab Technician
daveb@geotest-inc.com
360.410.8170 (c)
741 Marine Drive, Bellingham, WA 98225

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Sieve Analysis Test Report - ASTM C136/C117



% Gravel		% Sand			% Fines
Coarse	Fine	Coarse	Medium	Fine	Silt
0	0	14	55	30	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100	99 - 100	
#4	100	95 - 100	
#8	90		
#16	71	45 - 80	
#30	47		
#50	17	10 - 30	
#100	5	2 - 10	
#200	1.2	0.0 - 2.5	

* WSDOT 9-03.1(2)B Concrete Fine Agg. Class 2

Material Description

Class 2 Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.3567 D_{85}= 1.9248 D_{60}= 0.8522
D_{50}= 0.6501 D_{30}= 0.4155 D_{15}= 0.2821
D_{10}= 0.2290 C_u= 3.72 C_c= 0.88

Classification

USCS= SP AASHTO=

Remarks

Sample meets gradation specification.

Location: Reece Aggregates & Recycling (D-355) - Sampled from Pit Stockpile
Sample Number: 2170 **Date:** 12/2/21

GEOTEST
1.888.251.5276
Bellingham | Arlington | Oak Harbor
www.geotest-inc.com

Client: Reece Aggregates & Recycling
Project: Reece Aggregates & Recycling - General Services 2021
5802 Cemetary Road, Arlington, WA 98223
Project No: 21-0218 **Figure** SA008

Tested By: RB **Checked By:** DB

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ZHEJIANG LAIBAO PRECISION TECHNOLOGY CO.,LTD
NO.668 DONGHAI ROAD,XITANGQIAO TOWN,HAIYAN,ZHEJIANG,CHINA

QUALITY CERTIFICATE

Customer Name :	BRIGHTON - BEST INTERNATIONAL (TAIWAN), INC.	**Country of origin:**	China
INV.NO.:	BBT2193	**QUANTITY:**	54.000 MPcs
P.O.NO.:	U59541	**TEST DATE:**	10.16,2018
S/C NO.:	BBI-BH005,006,009,010,011,012,013	**ON BOARD:**	10.18,2018
PART NO.:	495031	**SIZE:**	3/8-16×1
LOT NO.:	1808963804	**DESCRIPTION:**	A307 GRADE A HEX BOLT H.D.G
PRODUCTION DATE:	08.09.2018		

Size: ASME B18.2.1 2012

Material and Mechanical properties: ASTM A307-2014 GR.A

Zinc Coatings: ASTM F2329-13

1.Chemical Composition Of Material（％）; Test facility: Spectrometer

STEEL GRADE /HEAT NO:	DIA.（mm）	C	Si	Mn	P	S	Cr	B	Ni	Al	Mo
Q195/185135	10	0.07	0.08	0.3	0.019	0.022					

2.Dimension; Test facility: X-ray fluorescence thickness meter \ Hardness tester \ UTM Machine \ Thread ring gauge \ Vernier \ Salt spray test chamber

INSPECTION ITEM	SPECIFICATION	RESULT	SAMPLE SIZE
Head Marking	LB307A	LB307A	1
Width A/F (inch)	0.544-0.562	0.550-0.556	9
Width A/C (inch)	0.620-0.650	0.627-0.634	9
Head Height (inch)	0.226-0.268	0.234-0.242	9
Body Dia (inch)	/	/	/
Total Length (inch)	0.970-1.020	0.989-1.005	9
Thread Length (inch)	FULL THREAD	FULL THREAD	9
Major Dia (inch)	0.3643-0.3750	0.366-0.370	3
GO Ring Gauge	THE NUT OF UNC 3/8-16$^{+0.30}$2B	OK	3
NO GO Ring Gauge	UNC 3/8-16 2A	OK	3
Tensile Strength (Psi)	MIN 60000	79763-82468	2
Hardness (HRB)	MAX 100	81-83	4
Visual	OK	OK	25
Salt Spray Test	/	/	/
Zinc Thickness (μm)	MIN 43	49.3-52.1	9

The report is issued according to ISO16228 F3.1(EN10204 3.1).

We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material/dimensional specifications.

QIN YUE ZHU
Q.C Supervisor

ZHEJIANG LAIBAO PRECISION TECHNOLOGY CO.,LTD
NO.668 DONGHAI ROAD,XITANGQIAO TOWN,HAIYAN,ZHEJIANG,CHINA

QUALITY CERTIFICATE

Customer Name :	BRIGHTON - BEST INTERNATIONAL (TAIWAN), INC.	**Country of origin:**	China
INV.NO.:	BBT2241	**QUANTITY:**	20.250 MPcs
P.O.NO.:	U58374	**TEST DATE:**	11.11,2018
S/C NO.:	BBI18417	**ON BOARD:**	11.15,2018
PART NO.:	487336	**SIZE:**	3/8-7×2-1/2
LOT NO.:	1809005902	**DESCRIPTION:**	HEX HEAD LAG SCREWS HDG
PRODUCTION DATE:	09.14,2018		

Size: ASME B18.2.1 2012

Material and Mechanical properties: ASTM A307 2014 GR.A

Zinc Coatings: ASTM F2329-13

1.Chemical Composition Of Material（%）; Test facility: Spectrometer

STEEL GRADE /HEAT NO:	DIA.（mm）	C	Si	Mn	P	S	Cr	B	Ni	Al	Mo
Q195/180920	10	0.07	0.1	0.35	0.017	0.023					

2.Dimension; Test facility: X-ray fluorescence thickness meter \ Hardness tester \ UTM Machine \ Thread ring gauge \ Vernier \ Salt spray test chamber

INSPECTION ITEM	SPECIFICATION	RESULT	SAMPLE SIZE
Head Marking	LB307A	LB307A	1
Width A/F (inch)	0.544-0.562	0.552-0.558	9
Width A/C (inch)	0.620-0.650	0.632-0.638	9
Head Height (inch)	0.226-0.268	0.235-0.241	9
Body Dia (inch)	0.360-0.388	0.365-0.370	3
Root Dia (inch)	0.250-0.268	0.259-0.261	3
Major Dia (inch)	0.360-0.388	0.368-0.372	3
Total Length (inch)	2.380-2.620	2.433-2.458	9
Thread Length (inch)	MIN 1.750	1.782-1.792	9
Hardness (HRB)	69-100	85-88	2
Visual	OK	OK	25
Salt Spray Test	/	/	/
Zinc Thickness (μm)	MIN 43	46.2-51.4	9

The report is issued according to ISO16228 F3.1(EN10204 3.1).

We hereby certify that the material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material/dimensional specifications.

QIN YUE ZHU
Q.C Supervisor

CONNECTING**SYSTEMS**

THREADED INSERTS



THC75 THC58 THC50 THC50S THC38 THC14

SIZES & PACKAGING

CODE	BOLT DIA.	A	B	C	PCS/CTN
THC14	1/4"	3/4"	1"	1-1/2"	500
THC38	3/8"	3/4"	1"	1-1/2"	1000
THC50	1/2"	3/4"	1-3/8"	2-5/8"	500
THC50S	1/2"	3/4"	1-3/8"	1-5/8"	500
THC58	5/8"	7/8"	1-1/2"	3"	250
THC75	3/4"	1"	1-5/8"	3-1/4"	200

ADVANTAGES

* Five sizes to accommodate 1/4", 3/8", 1/2" 5/8" and 3/4" bolt diameters.

* Will shrink and expand equally to concrete with temperature changes-prevents cracking of the the concrete.

* Lifting insets for lightweight precast pieces.

Can be used in hundreds of applications:

* Secure handles to burial vaults.

* Secure air conditioners and such to concrete pads.

* Secure cable holders on utility poles.

* Fasten landscape items to concrete bases.

* Suspends pipes and conduits from concrete panels.

PSI Information To Build On

Engineering – Consulting-Testing

Connecting Systems Inc.
5929 217th St Ct E
Spanaway, WA 98387

Phone: (253) 548-7425
Email: kenmcgoo@yahoo.com

RE: Tensile Pull-Out Testing on Concrete Inserts
PSI Project N0. 07421645

Equipment Used: PSI Hydraulic Pressure Gauge-Wika, Model 213.54 S/N 3346
PSI Hydraulic Pump & Ram-Enerpac, Model RCH202 20 Ton S/N U203

Test Performed By: Gregory Larkin, Michael Thornhill & Eric Allen

Date of Testing: July 2017

Test Description & Results:
PSI performed tensile pull-out testing on concrete inserts as requested by Connecting Systems Inc and was done in accordance with the procedures used previously in PSI report number 7121-96534-0002 dated 12/05/1989. Testing was performed to load test the concrete inserts to failure.

The concrete inserts tested were 4 - 3/8 " x 1-1/2" and 4 -3/4" x 3-1/4". Each insert was cast into a separate 9" x 9" x 6" concrete panel with standard wire mesh reinforcement. After the concrete panels were cured for 29 days the compression strength cylinder samples were tested and had an average compression of 7,600 psi. PSI then utilized a calibrated ram to perform tensile pull-out testing of the concrete inserts. The hydraulic ram was extended slowly and the load was applied until the gauge pressure dropped indicating failure. The maximum gauge pressure was then recorded for each insert tested. The gauge pressure was then converted to a load (measured in pounds).

The average pull-out strength for the ¾" inserts was 6,661 with the concrete panel failing and releasing insert.

The average pull-out strength for the 3/8" inserts was 2,828 with the base of the inserts failing and releasing the insert.

BASF

We create chemistry

3	03 30 00	Cast-in-Place Concrete
	03 40 00	Precast Concrete
	03 70 00	Mass Concrete
4	04 05 16	Masonry Grouting

MasterGlenium® 7500

Full-Range Water-Reducing Admixture

Formerly GLENIUM 7500*

Description

MasterGlenium 7500 full-range water-reducing admixture is very effective in producing concrete mixtures with different levels of workability including applications that require self-consolidating concrete (SCC). MasterGlenium 7500 admixture meets ASTM C 494/C 494M compliance requirements for Type A, water-reducing, and Type F, high-range water-reducing, admixtures.

Applications

Recommended for use in:

- Concrete with varying water reduction requirements (5-40%)
- Concrete where control of workability and setting time is critical
- Concrete where high flowability, increased stability, high-early and ultimate strengths, and improved durability are needed
- Producing self-consolidating concrete (SCC)
- Strength-on-demand concrete, such as 4x4™ Concrete
- Pervious concrete

Features

MasterGlenium 7500 full-range water-reducing admixture is based on the next generation of polycarboxylate technology found in all of the MasterGlenium 7000 series products. This technology combines state-of-the-art molecular engineering with a precise understanding of regional cements to provide specific and exceptional value to all phases of the concrete construction process.

- Dosage flexibility for normal, mid-range and high-range applications
- Excellent early strength development
- Controls setting characteristics
- Optimizes slump retention/setting relationship
- Consistent air entrainment

Benefits

- Faster turnover of forms due to accelerated early strength development
- Reduces finishing labor costs due to optimized set times
- Use in fast track construction
- Minimizes the need for slump adjustments at the jobsite
- Less jobsite QC support required
- Fewer rejected loads
- Optimizes concrete mixture costs

Performance Characteristics

Concrete produced with MasterGlenium 7500 admixture achieves significantly higher early age strength than first generation polycarboxylate high-range water-reducing admixtures. MasterGlenium 7500 admixture also strikes the perfect balance between workability retention and setting characteristics in order to provide efficiency in placing and finishing concrete. The dosage flexibility of MasterGlenium 7500 allows it to be used as a normal, mid-range, and high-range water reducer.

MASTER® BUILDERS SOLUTIONS

Guidelines for Use

Dosage: MasterGlenium 7500 admixture has a recommended dosage range of 2-15 fl oz/cwt (130-975 mL/100 kg) of cementitious materials. For most mid- to high-range applications, dosages in the range of 5-8 fl oz/cwt (325-520 mL/100 kg) will provide excellent performance. For high performance and producing self-consolidating concrete mixtures, dosages of up to 12 fl oz/cwt (780 mL/100 kg) of cementitious materials can be utilized. Because of variations in concrete materials, jobsite conditions and/or applications, dosages outside of the recommended range may be required. In such cases, contact your local sales representative.

Mixing: MasterGlenium 7500 admixture can be added with the initial batch water or as a delayed addition. However, optimum water reduction is generally obtained with a delayed addition.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterGlenium 7500 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressing steel or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of MasterGlenium 7500 admixture.

Compatibility: MasterGlenium 7500 admixture is compatible with most admixtures used in the production of quality concrete, including normal, mid-range and high-range water-reducing admixtures, air-entrainers, accelerators, retarders, extended set control admixtures, corrosion inhibitors, and shrinkage reducers.

Do not use MasterGlenium 7500 admixture with admixtures containing beta-naphthalene sulfonate. Erratic behaviors in slump, workability retention and pumpability may be experienced.

Storage and Handling

Storage Temperature: MasterGlenium 7500 admixture must be stored at temperatures above 40 °F (5 °C). If MasterGlenium 7500 admixture freezes, thaw and reconstitute by mechanical agitation.

Shelf Life: MasterGlenium 7500 admixture has a minimum shelf life of 9 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterGlenium 7500 admixture has been exceeded.

Packaging

MasterGlenium 7500 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterGlenium 7500 admixture

Additional Information

For additional information on MasterGlenium 7500 admixture or on its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

BASF warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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* GLENIUM 7500 became MasterGlenium 7500 under the Master Builders Solutions brand, effective January 1, 2014.

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NSF Certified to NSF/ANSI 61

BASF Corporation
Admixture Systems
www.master-builders-solutions.basf.us

United States
23700 Chagrin Boulevard
Cleveland, Ohio 44122-5544
Tel: 800 628-9990 ■ Fax: 216 839-8821

Canada
1800 Clark Boulevard
Brampton, Ontario L6T 4M7
Tel: 800 387-5862 ■ Fax: 905 792-0651

BASF
The Chemical Company

3

03 30 00	Cast-in-Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterAir® AE 90

Air-Entraining Admixture

Formerly MB-AE 90*

Description

MasterAir AE 90 air-entraining admixture is for use in concrete mixtures. It meets the requirements of ASTM C 260, AASHTO M 154 and CRD-C 13.

Applications

Recommended for use in:

- Concrete exposed to cyclic freezing and thawing
- Production of high-quality normal or lightweight concrete (heavyweight concrete normally does not contain entrained air)

Features

- Ready-to-use in the proper concentration for rapid, accurate dispensing

Benefits

- Improved resistance to damage from cyclic freezing and thawing
- Improved resistance to scaling from deicing salts
- Improved plasticity and workability
- Reduced permeability – increased watertightness
- Reduced segregation and bleeding

Performance Characteristics

Concrete durability research has established that the best protection for concrete from the adverse effects of freezing and thawing cycles and deicing salts results from: proper air content in the hardened concrete, a suitable air-void system in terms of bubble size and spacing, and adequate concrete strength, assuming the use of sound aggregates and proper mixing, transporting, placing, consolidation, finishing and curing techniques. MasterAir AE 90 admixture can be used to obtain adequate freeze-thaw durability in a properly proportioned concrete mixture, if standard industry practices are followed.

Air Content Determination: The total air content of normal weight concrete should be measured in strict accordance with ASTM C 231, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method” or ASTM C 173/C 173M, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.” The air content of lightweight concrete should only be determined using the Volumetric Method. The air content should be verified by calculating the gravimetric air content in accordance with ASTM C 138/C 138M, “Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.” If the total air content, as measured by the Pressure Method or Volumetric Method and as verified by the Gravimetric Method, deviates by more than 1.5%, the cause should be determined and corrected through equipment calibration or by whatever process is deemed necessary.

MASTER® BUILDERS SOLUTIONS

Guidelines for Use

Dosage: There is no standard dosage for MasterAir AE 90 admixture. The exact quantity of air-entraining admixture needed for a given air content of concrete varies because of differences in concrete-making materials and ambient conditions. Typical factors that might influence the amount of air entrained include: temperature, cementitious materials, sand gradation, sand-aggregate ratio, mixture proportions, slump, means of conveying and placement, consolidation and finishing technique. The amount of MasterAir AE 90 admixture used will depend upon the amount of entrained air required under actual job conditions. In a trial mixture, use 0.25 to 4 fl oz/cwt (16-260 mL/100 kg) of cementitious material. Measure the air content of the trial mixture, and, if needed, either increase or decrease the quantity of MasterAir AE 90 admixture to obtain the desired air content.

In mixtures containing water-reducing or set-control admixtures, the amount of MasterAir AE 90 admixture needed may be somewhat less than the amount required in plain concrete.

Due to possible changes in the factors that can affect the dosage of MasterAir AE 90 admixture, frequent air content checks should be made during the course of the work. Adjustments to the dosage should be based on the amount of entrained air required in the mixture at the point of placement.

If an unusually high or low dosage of MasterAir AE 90 admixture is required to obtain the desired air content, consult your local sales representative. In such cases, it may be necessary to determine that, in addition to a proper air content in the fresh concrete, a suitable air-void system is achieved in the hardened concrete.

Dispensing and Mixing: Add MasterAir AE 90 admixture to the concrete mixture using a dispenser designed for air-entraining admixtures, or add manually using a suitable measuring device that ensures accuracy within plus or minus 3% of the required amount.

For optimum, consistent performance, the air-entraining admixture should be dispensed on damp, fine aggregate. If the concrete mixture contains fine lightweight aggregate, field evaluations should be conducted to determine the best method to dispense the air-entraining admixture.

Precaution

In a 2005 publication from the Portland Cement Association (PCA R&D Serial No. 2789), it was reported that problematic air-void clustering that can potentially lead to above normal decreases in strength was found to coincide with late additions of water to air-entrained concretes. Late additions of water include the conventional practice of holding back water during batching for addition at the jobsite. Therefore, caution should be exercised with delayed additions of water to air-entrained concrete. Furthermore, an air content check should be performed after post-batching addition of any other materials to an air-entrained concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterAir AE 90 admixture will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized floor and roof systems. No calcium chloride or other chloride-based ingredients are used in the manufacture of this admixture.

Compatibility: MasterAir AE 90 admixture may be used in combination with any BASF admixture, unless stated otherwise on the data sheet for the other product. When used in conjunction with other admixtures, each admixture must be dispensed separately into the concrete mixture.

Storage and Handling

Storage Temperature: MasterAir AE 90 admixture should be stored and dispensed at 31 °F (-0.5 °C) or higher. Although freezing does not harm this product, precautions should be taken to protect it from freezing. If MasterAir AE 90 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. Do not use pressurized air for agitation.

Shelf Life: MasterAir AE 90 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterAir AE 90 admixture has been exceeded.

Safety: Chemical goggles and gloves are recommended when transferring or handling this material.

Packaging

MasterAir AE 90 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterAir AE 90 admixture

Additional Information

For additional information on MasterAir AE 90 admixture, or its use in developing a concrete mixture with special peformance characteristics, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

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Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on BASF's present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. BASF reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.

* MB-AE 90 became MasterAir AE 90 under the Master Builders Solutions brand, effective January 1, 2014.

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BASF Corporation
Admixture Systems
www.master-builders-solutions.basf.us

United States
23700 Chagrin Boulevard
Cleveland, Ohio 44122-5544
Tel: 800 628-9990 ■ Fax: 216 839-8821

Canada
1800 Clark Boulevard
Brampton, Ontario L6T 4M7
Tel: 800 387-5862 ■ Fax: 905 792-0651

Spray-Lock® CONCRETE PROTECTION



PRODUCT DATA SHEET

Amorfa

DESCRIPTION

Amorfa is a ready-to-use liquid mineral additive for enhancing the fresh and hardened properties of concrete by optimizing design water usage and benefit, providing workability advantages, and using the natural pozzolanic reaction in the capillary and pore space to significantly reduce the permeability of the hardened concrete. Amorfa meets the criteria given in ASTM C494 for a Type S admixture and ACI 212.3R-16 for finely divided solid material as a Permeability Reducing Admixture (PRA).

ABOUT THE PRODUCT

Spray-Lock Concrete Protection (SCP) technology was developed in the late 1970s to solve concrete permeability issues in some of the harshest conditions possible. Decades later, the term Permeability Reducing Admixture (PRA) entered into ACI 212 to address the long-standing benefits obtained from preventing moisture movement in concrete, something SCP has known to be true for over 40 years.

BENEFITS OF USE IN CONCRETE

Reduced permeability —
Measured through hydrostatic pressure via EN 12390-8 *(see chart A, below)*.

Reduced chloride ion ingress —
Measured through forced migration via NT 492 *(see chart B, below)* or through absorption from ponding only via ASTM C1556.

OTHER METHODS OF EVALUATION

- Freeze-thaw resistance
- Absorption change
- Change in bleeding
- Volume change
- Resistance to scaling from de-icing materials

Chart A: **Hydrostatic Pressure Penetration (EN 12390-8)**

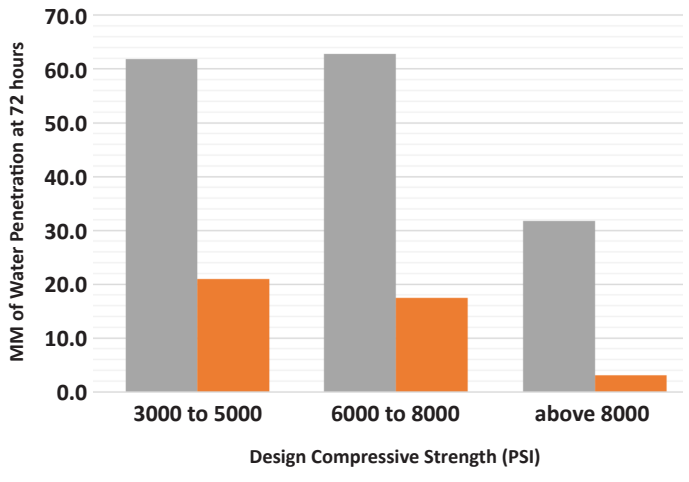
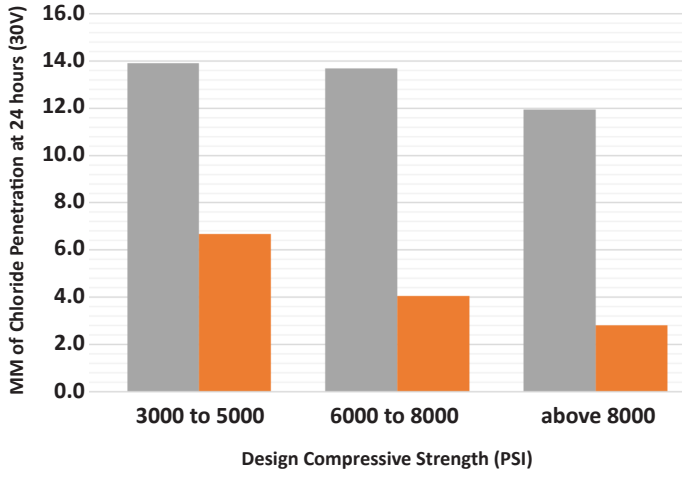


Chart B: **Chloride Migration (NT 492)**



CONTROL AVERAGE
AMORFA AVERAGE

Spray-Lock Concrete Protection, LLC
5959 Shallowford Road, Ste. 405
Chattanooga, TN 37421
423.305.6151

scptech@spraylock.com
www.concreteprotection.com

PERFORMANCE GAINS

Fresh Concrete —

- » Improved workability & reduced pump pressures
- » Little to no impact on fresh properties, requires minimal mix adjustments
- » Safer delivery method & fewer negative mixture impacts for use of amorphous silica/silicon dioxide
- » Handling and dosage is done through typical admixture systems

Hardened Concrete —

- » Increased life cycle
- » Reduced efflorescence
- » Reduced permeability and disconnection of capillary system
- » Increased protection from environmental attack
- » Improved durability and corrosion resistance
- » Improved resistance to freeze-thaw deterioration

DIRECTIONS FOR USE

Amorfa is normally added to the mixing water at a rate of 0.25 gallon to 1.0 gallon per cubic yard (1.24 liters to 4.96 liters per cubic meter). Pretesting is recommended to determine the optimum addition rate to achieve suitable performance for the expected service conditions.

Amorfa should be added into the initial batch water and introduced into the mixer before any admixtures or other constituents. After Amorfa has been introduced into the mixer with the initial batch water, normal concrete batching processes can be followed. Amorfa does not contain any added chlorides. Amorfa may be used with chemical admixtures as long as they meet their respective requirements of ASTM, are free from contaminants, and are added to the mixture separately from Amorfa. If an ASTM C260 Air Entrainment Chemical is used, it must be dispensed separately from Amorfa.

Consult Spray-Lock Concrete Protection for assistance in determining the appropriate dosage and use of Amorfa and/or SCP products for your project.

PACKAGING, STORAGE, & HANDLING OF PRODUCT

Amorfa is available in bulk in some areas. Amorfa is available and can be shipped globally packaged in either 330-gallon or 275-gallon totes, 55-gallon drums, or 5-gallon pails.

Product shall ideally be stored in a location that is dry and between 35°F and 100°F (1.7°C and 37.8°C) ambient temperature. Protect from freezing and exposure to direct sunlight. Product should not be used if it becomes frozen. Amorfa has a 5-year shelf life under proper storage conditions.

For safe handling information on this product, see the Safety Data Sheet (SDS).

LIMITED WARRANTY

Spray-Lock Concrete Protection, LLC (SCP) warrants this product for five years (5) from date of purchase to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life and stored according to guidelines on product packaging. SCP'S SOLE LIABILITY SHALL BE LIMITED TO THE PURCHASE PRICE PAID BY THE CUSTOMER FOR SCP PRODUCT FOR THE QUANTITY OF DEFECTIVE MATERIAL EXCLUSIVE OF LABOR OR COST OF LABOR.

To the greatest extent permitted by law, this Limited Warranty is in lieu of all other warranties, expressed or implied. Seller disclaims all other warranties, expressed or implied, oral or written, including without limitation, the implied warranties of merchantability and fitness for a particular purpose. SCP shall not be liable under any legal theory for special or consequential damages. SCP SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. User determines suitability of product for intended use and assumes all risk.

Pre-testing concrete mixes to determine the fitness of products for a particular use are the responsibility of the user. In-house and independent testing supports the instructions and claims made on this document.

APPLICATIONS

- » Precast concrete
- » Low-slump concrete
- » Concrete paving
- » Shotcrete
- » Manufactured concrete products
- » Reinforced concrete
- » High performance concrete
- » High strength concrete
- » Lightweight
- » Pervious
- » Roller compacted concrete

Spray-Lock CONCRETE PROTECTION

Spray-Lock Concrete Protection, LLC
5959 Shallowford Road, Ste. 405
Chattanooga, TN 37421
423.305.6151

scptech@spraylock.com
www.concreteprotection.com

ASH GROVE CEMENT COMPANY

Seattle Plant
3801 E Marginal Way S
Seattle, Washington 98134
Phone #: (206)-694-6202

Cement Type: III

Production Period: May 1, 2026 - May 31, 2026 Date: June 11, 2026

ASTM C150/C150M
REQUIREMENTS

Certification #: III-2026-05

CHEMICAL

Item	Spec. Limit	Test Result
SiO_2 (%)	[A]	20.2
Al_2O_3 (%)	[A]	4.6
Fe_2O_3 (%)	[A]	3.3
CaO (%)	[A]	63.9
MgO (%)	6.0 max	0.7
SO_3 (%)	3.5 max[E]	3.1
Loss on ignition (%)	3.5 max	2.4
Na_2O (%)	[A]	0.29
K_2O (%)	[A]	0.39
Equivalent alkalies (%)	[A]	0.54
Insoluble residue (%)	1.5 max	0.29
CO_2 (%)	[A]	1.8
Limestone (%)	5.0 max	4.1
$CaCO_3 + MgCO_3$ in limestone (%)	75 min	98
Inorganic processing addition (%)	5.0 max	0.2
Potential phase composition (%)[C]		
C_3S	[A]	53
C_2S	[A]	18
C_3A	15 max	7
C_4AF	[A]	10
$C_4AF + 2(C_3A)$	[A]	23
$C_3S + 4.75C_3A$	[A]	84

PHYSICAL

Item	Spec. Limit	Test Result
Air content of mortar (volume %)	[A]	6
Blaine fineness (m^2/kg)	[A]	562
Fineness, No. 325 sieve (% retained)	[B]	0.8
Compressive strength (psi)		
1 day	1,740 min	3,490
3 days	3,480 min	5,420
7 days	[A]	6,260
28 days[B]	[A]	7,760
Time of initial setting (Vicat)		
Not less than (minutes)	45	75
Not more than (minutes)	375	
Heat of hydration, C1702/C1702M, (kJ/kg)[B]		
3 days	[A]	347
Mortar bar expansion, C1038/C1038M, (%)[B]	0.020 max[D]	0.008
Early stiffening (false set), C451/C451M, (%)[B]		
Final penetration	50 min	90

ADDITIONAL DATA

Item	Limestone	Inorganic Processing Addition
Amount	4.1	0.2
SiO_2 (%)	0.8	15.7
Al_2O_3 (%)	0.2	6.4
Fe_2O_3 (%)	0.10	1.60
CaO (%)	55.2	40.3
SO_3 (%)	0.08	0.60

[A] Not applicable.

[B] Test results for this production period may not be available and most recent test results provided (some data may be for information only).

[C] Adjusted in accordance with A1.6.

[D] Required only if percent SO_3 exceeds the limit in Table 1, in which case the Test Method ASTM C1038/C1038M expansion shall not exceed 0.020% at 14 days.

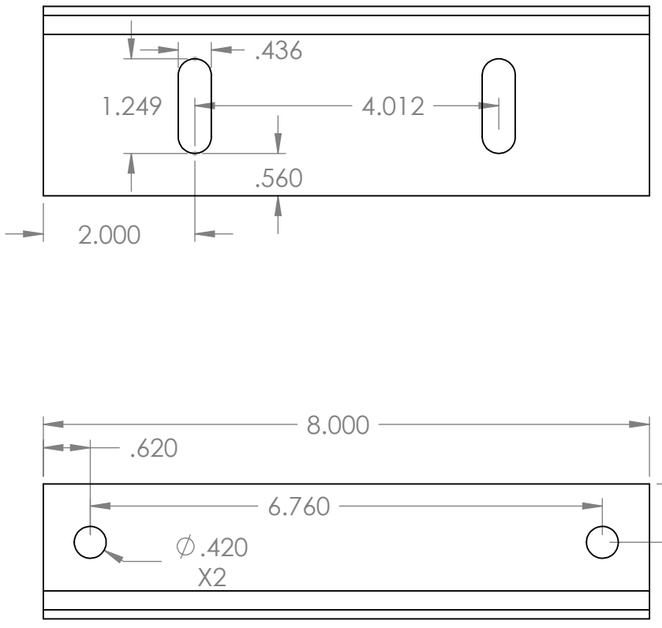
[E] It is permissible to exceed the value in the table for SO_3 content, provided it has been demonstrated by Test Method ASTM C1038/C1038M that the cement with the increased SO_3 will not develop expansion exceeding 0.020% at 14 days.

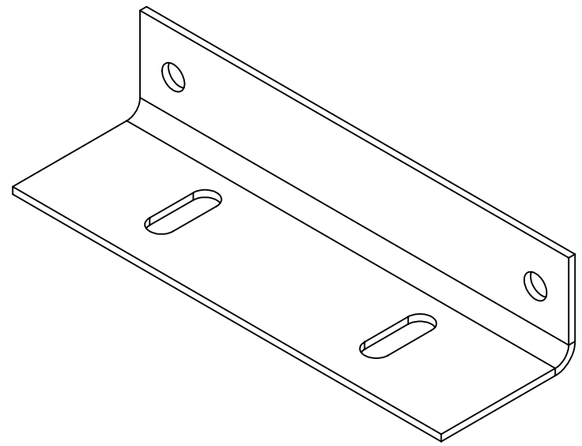
We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of the ASTM C150/C150M Type III and AASHTO M85 Portland Cement specifications.

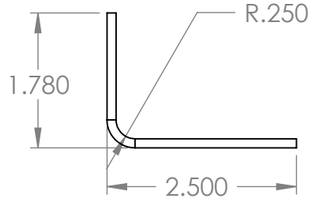
Signature: Trygve Grey Title: Quality Manager

Name: J Trygve Grey

X= .263
R= .250







Metal Werks, Inc.
5625 47th Ave. NE Unit D Marysville, WA 98270
Tel: 360.651.0300 Fax: 360.651.2318

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NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ± 1.0
TWO PLACE DECIMAL ± .030
THREE PLACE DECIMAL ± .010
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
11 GA CRS
FINISH
Galvanized
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	MM	7/6/2010
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
COMMENTS:		

Customer Number:
Diamond Concrete Oroducts

TITLE:
Stair Tread Mount

SIZE	DWG. NO.	REV
B	Draw No.	-
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1