

Addendum No. 2 to IFB 19-16



CITY OF SOMERVILLE, MASSACHUSETTS
Department of Purchasing
JOSEPH A. CURTATONE
MAYOR

To: All Parties on Record with the City of Somerville as Holding IFB 19-16, **Central
Broadway Pavement Markings**

From: Michael Richards, Assistant Purchasing Director

Date: August 30, 2018

Re: Clarify Specifications for Pavement Markings

Addendum No. 2 to IFB 19-16

Please acknowledge receipt of this Addendum by signing below and including this form in your proposal package. Failure to do so may subject the proposer to disqualification.

All pavement markings and traffic control devices should conform to ASTM and MUTCD standards. Methyl Methacrylate and color-coated glass aggregate with epoxy binder products should meet, or equal, the specifications in the attached sheets.

NAME OF COMPANY / INDIVIDUAL: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

TELEPHONE/FAX/EMAIL: _____

SIGNATURE OF AUTHORIZED INDIVIDUAL: _____

ACKNOWLEDGEMENT OF ADDENDA:

Addendum #1 _____ **#2** _____ **#3** _____ **#4** _____

CycleGrip® MMAX Corundum

Specialized Bike Lane Delineation

PRODUCT DATA

Product Type: MMA Area Marking with Corundum
 Product Code: 999660G-KIT
 Product Color: E-F Bike Lane Green
 Effective Date: 2016

Product Description:

CycleGrip® MMAX specialized bike lane treatment system conveniently combines state-of-the-art Methyl Methacrylate resins with hardwearing aggregate and premium pigments to deliver an extremely durable, highly visible and color stable lane delineation treatment that meets the non-slip requirements needed for cyclists.

CycleGrip® MMAX can be used to delineate bike lanes and increase bicycle lane presence in applications such as, but not limited to, corridor treatment along the length of a bike lane or cycle track especially at areas where bicycle and vehicular conflict are expected and added safety is needed.

Product Advantages:

- Durable
- Color stable
- Fast back to traffic
- Non-slip surface
- Easy to apply; pre-packaged for on-site mixing and convenience
- FHWA / MUTCD compliant bike lane green color

Packaging:

Each CycleGrip® MMAX kit mixes to 2.79 gallons and covers approximately 45-50 sq. ft. @ 90 mils build thickness.

One Kit includes:

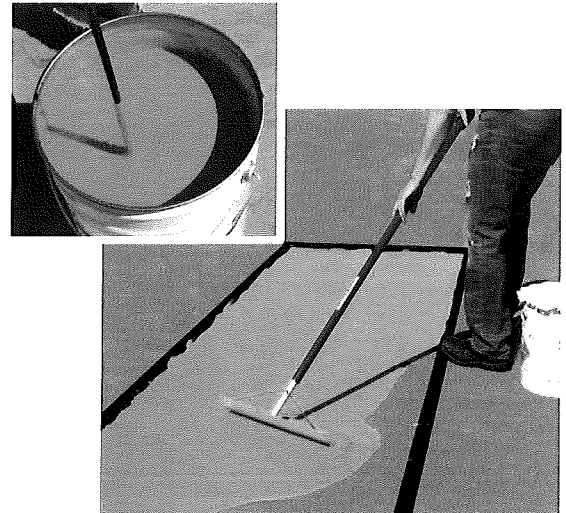
- CycleGrip® MMAX Resin: 2 gallons / 7.57 liters
 - Supplied in 5 gallon pail for easy mixing
- CycleGrip® MMAX Aggregate: 1 – 25.0 lbs / 11.34 kg bag
- Catalyst*: 12.35 fl. oz. / 365 ml (.51lbs / .23 kg)

Storage:

Keep cool. Keep in dry protected areas between 40°F – 80°F, out of direct sunlight and protected from open flame. Use within six months of receipt.

Other:

*Amount of catalyst used is dependent on ambient and road temperatures. Each kit is supplied with the maximum amount of catalyst that would be required. Refer to Table in CycleGrip® MMAX Application Instructions.



Product Characteristics		Test
Binder Resin		
Density	8.1 +/- 0.35	Lbs/Gal
Tensile	> 400 psi	ASTM D638
Elongation	> 180%	ASTM D638
Flash Point	> 10°C	ASTM D1310
Aggregate		
Hardness	9	Mohs Scale
Bike Lane Treatment		
Density	18.5 +/- 0.5	Lbs/Gal
Build Thickness	90 +/- 10	Mils
VOC	< 350	Grams/Liter
Pot Life	~15min	AASHTO T237
Solids	> 99%	ASTM D2369
Skid	> 60	ASTM E303
Hardness	50-60	ASTM D2240
Water Absorption	< 0.25%	ASTM D570
Cure Time	< 30	Minutes

The product data offered herein is, to the best of our knowledge, true and accurate, but all recommendations are made without warranty, expressed or implied. Because the conditions of use are beyond our control, neither Ennis-Flint nor its agents shall be liable for any injury, loss or damage, direct or consequential, arising from the use or the inability to use the product described herein. As Ennis-Flint has neither control over the installation of product described herein nor control of the environmental factors the installed markings are subjected to, there is no guarantee as to the durability or the retroreflective properties of any marking system applied. No person is authorized to make any statement or recommendation not contained in the Product Data, and any such statement or recommendation, if made, shall not bind the Corporation. Further, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents, and no license under the claims of any patent is either implied or granted.



MMAX AREA MARKINGS SPECIFICATION

Methyl Methacrylate Area Marking with Anti-Skid

1. **USE:** MMAX AREA MARKINGS conveniently combine state-of-the-art Methyl Methacrylate resins with hardwearing aggregate and premium pigments to deliver an extremely durable, highly visible and color stable lane delineation treatment that meets the non-slip requirements needed for pedestrians, cyclists and vehicles.
 - 1.1. MMAX AREA MARKINGS are only available through Ennis-Flint, or an authorized distributor of Ennis-Flint.
 - 1.2. MMAX AREA MARKINGS are available in a variety of colors.
2. **MATERIAL:** Materials used to create MMAX AREA MARKINGS shall consist of MMAX AREA MARKING Pre-pigmented Resin, MMAX AREA MARKING Hardwearing Aggregate and Catalyst.
 - 2.1. MMAX AREA MARKING Resin.
 - 2.1.1. MMAX AREA MARKING Resins shall have the following properties:

Density	8.1 +/- 0.35	Lbs/Gal
Tensile	>400 PSI	ASTM D638
Elongation	>180%	ASTM D638
Flash Point	>50°F / 10°C	ASTN D1310
 - 2.2. MMAX AREA MARKING Aggregate shall be provided by the manufacturer and will have a hardness of 9 on the Mohs scale. Aggregate shall be a neutral, light color that will not affect the color of the finished product, and will have a mesh sizing of 24 Grit.
 - 2.3. Catalyst shall come in a powder form and be supplied in bulk at the maximum usage rate of 0.51 +/- 0.2 lbs (.23 +/- .09 kg) per mixed pail of resin and aggregate.
3. **APPLICATION EQUIPMENT:**
 - 3.1. Squeegees shall be designed for heavy duty usage and sourced locally.
 - 3.2. Rollers shall be medium nap in texture and require a roller cage and handle.
 - 3.3. Drill shall be high speed, high torque capable of supplying enough power to thoroughly mix MMAX AREA MARKING additives when paired with a paint mixing paddle.
4. **APPLICATION:**
 - 4.1. Pre-conditions. Aged surfaces containing reflective cracking should be repaired, or it should be expected that reflective cracking may re-appear.
 - 4.2. Surface preparation. Clean the intended application area thoroughly. All loose particles, dirt, sand dust, etc. must be removed. Broom and use a power blower or compressed air. The surface must be clean, dry and free of all dust, oil, debris and any other material that might interfere with the bond between MMAX AREA MARKING's and the surface to be treated.
 - 4.2.1. Concrete: All curing compounds shall be completely removed from concrete surfaces prior to installation by shot blasting or grinding. Existing concrete surfaces shall be wire brushed, but may require shot blasting or grinding dependent on condition.
 - 4.2.2. Chemical contaminants: Clean areas containing chemical contaminants such as vehicle fluids, using a degreasing solution, and ensure removal of contaminants and degreasing solution well in advance of the application.
 - 4.2.3. Obstacles: Pavement markings that are to be left in place, utilities, drainage structures, curbs and any other structure within or adjacent to the treatment location shall be masked to protect from application. Existing pavement markings conflicting with the surface treatment should be removed by grinding or water blasting. Extra care should be taken to thoroughly remove the dust and debris caused from grinding.
 - 4.3. Mixing. Catalyst quantity shall be based on ambient and pavement temperature and must be mixed very thoroughly at specified rates and into materials listed in the materials mixing guide. Material shall mix to approximately 2.79 gallons (10.55 liters) and weigh approximately 52 lbs (23.6 kg).

MMAX AREA MARKINGS SPECIFICATION

Methyl Methacrylate Area Marking with Anti-Skid

4.3.1. Materials Mixing Guide:

MMAX AREA MARKING Resin:	2 gallons (7.6 liters)
MMAX AREA MARKING Aggregate:	25.0 lbs (11.34 kg)
CATALYST (temperature dependent):	
> 90°F / 32°C	3 fl. oz. (.09 liters)
70-90°F / 18-32°C	6 fl. oz. (.185 liters)
< 70°F / 18°C	12 fl. oz. (.365 liters)

4.4. Installation. MMAX AREA MARKING's shall immediately be poured onto the pavement and distributed at 45-50 sq. ft. per pail using a squeegee. Trowels can be used where a squeegee is not effective. Use roller to back roll MMAX AREA MARKINGS to remove working lines and create a consistent, anti-slip texture. Remove masking as material gels, but before it cures.

4.5. Opening to traffic. MMAX AREA MARKING's must be 100% cured, which will be a hardened solid state, before traffic is permitted. Curing typically takes 30-60 minutes and is based on temperature and amount of catalyst added.

5. **PERFORMANCE PROPERTIES:**

5.1. MMAX AREA MARKING's will have the following performance properties:

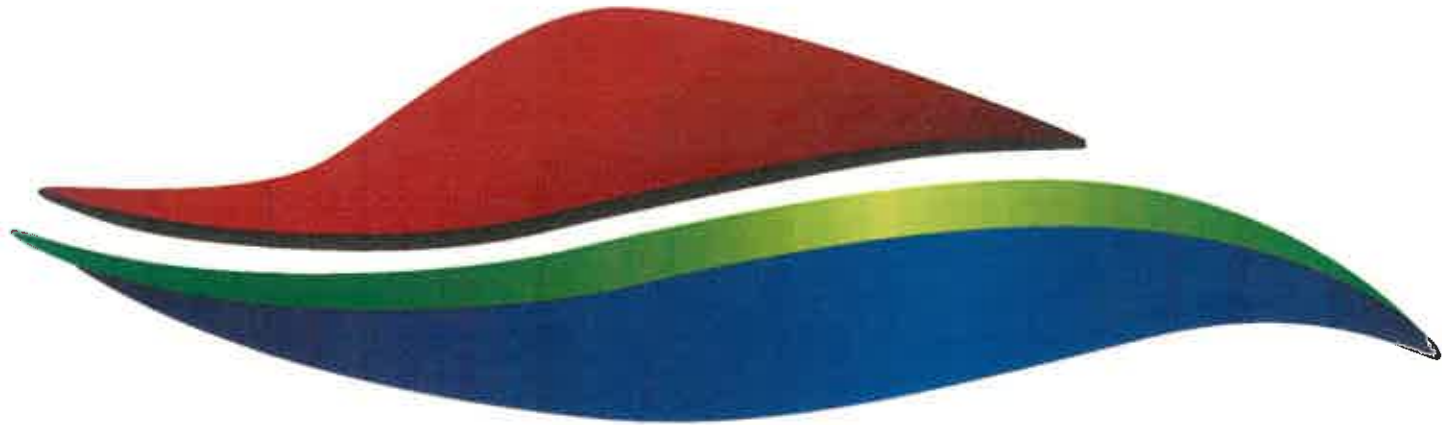
Density	18.5 +/- 0.5	Lbs. / Gallon
Solids	>99%	D2205
Build Thickness	90 +/-10	Mils
VOC	<350	Grams/Liter
Pot Life	~15min	AASHTO T237
Skid	>60	ASTM E303
Hardness	50-60	ASTM D2240
Water Absorption	<0.25%	ASTM D570

6. **PACKAGING:**

6.1. MMAX AREA MARKING Resin must be supplied in compliant metal pails that have a UN1A2Y1.9/100 rating.

6.2. MMAX AREA MARKING Aggregate must be supplied in 25.0 +/- 0.5 lbs. (11.34 +/- .23 kg) pre-packaged bags or pails.

7. **TECHNICAL SERVICES:** Shall be available from the manufacturer upon request.

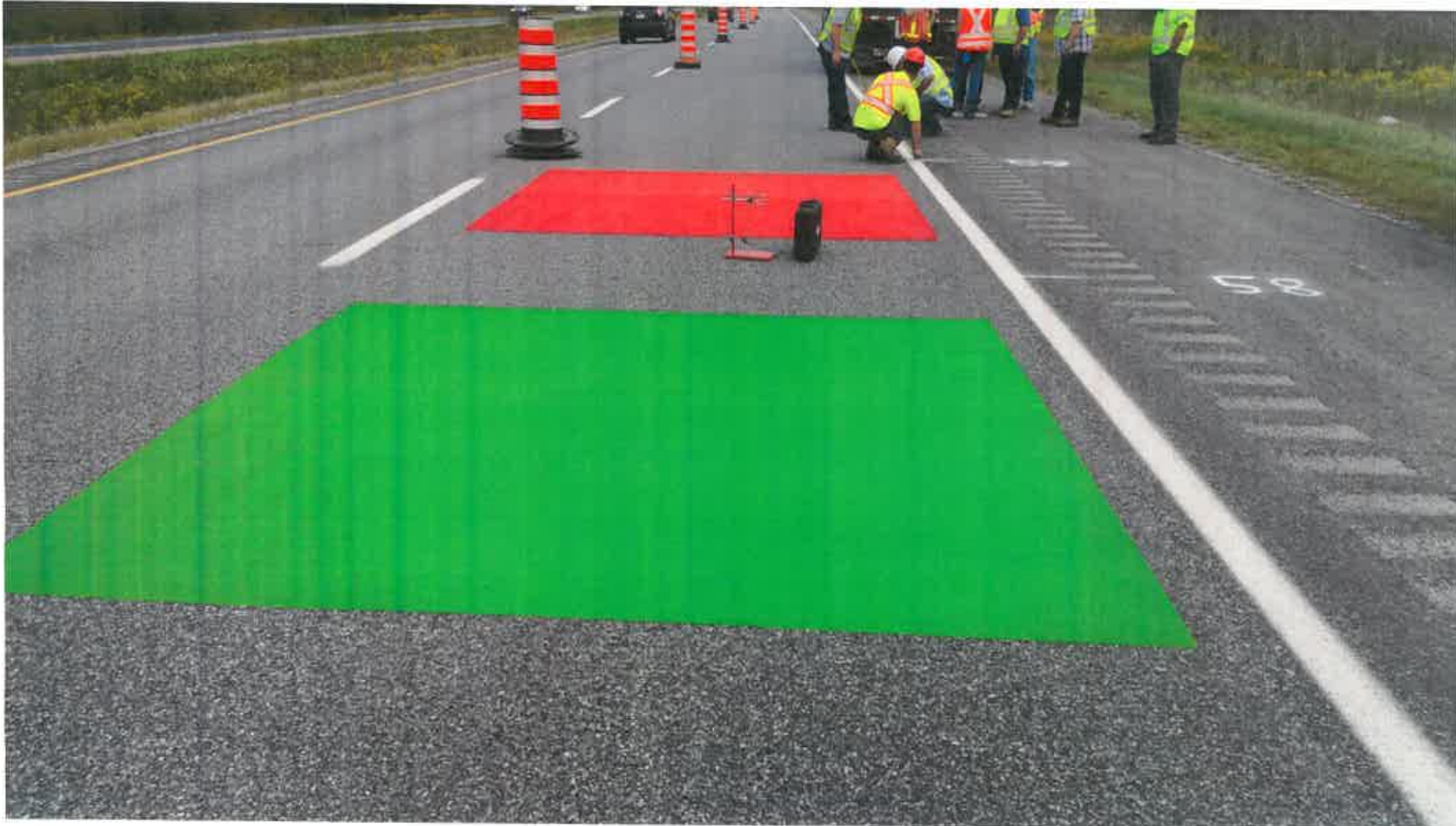


RUBY LAKE

COLOR COATED GLASS AGGREGATE

Testing in Quebec

Applied to highway – heavy traffic – extreme Canadian weather
Installed in 2015



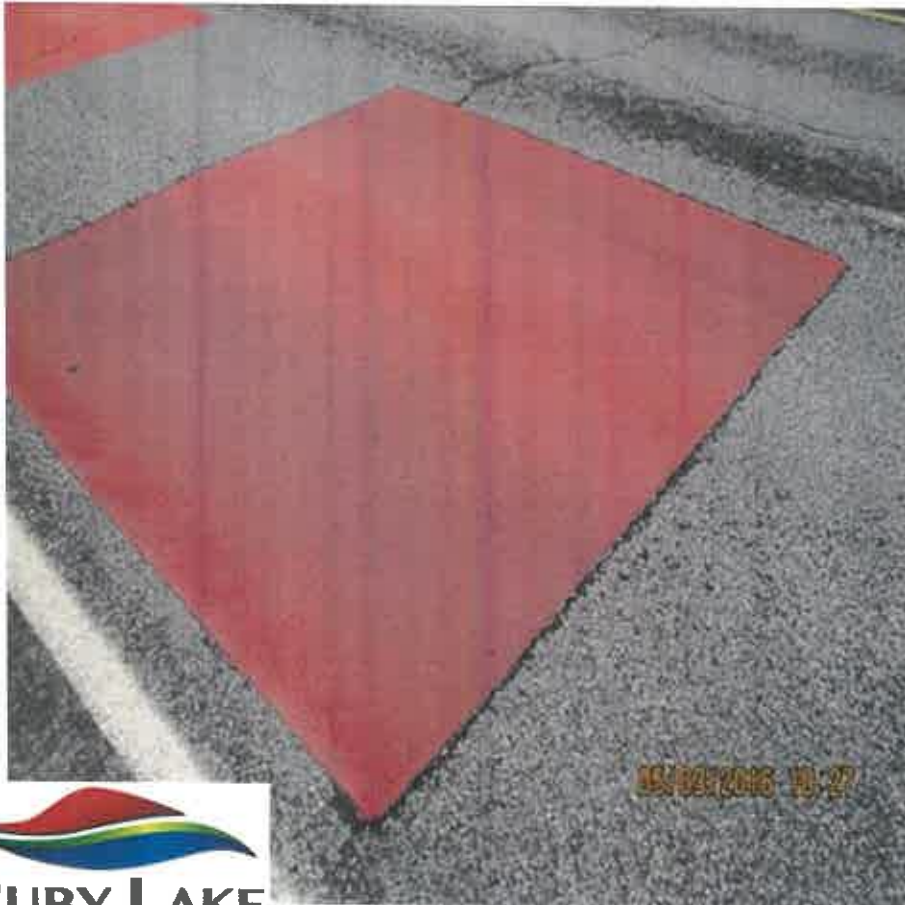
Testing in Quebec AFTER ONE YEAR



Testing in Quebec

AFTER ONE YEAR

RUBY LAKE GLASS INSTALL



OUR COMPETITORS INSTALL



Testing in Quebec

AFTER ONE YEAR

RUBY LAKE GLASS INSTALL



OUR COMPETITORS INSTALL



Color Coated Glass Aggregate 1-3mm

Technical Data Sheet

Product Description

Pulverized color coated glass aggregate is used for road safety demarcation applications. Custom colors and aggregate size gradations are available per customer specifications. The glass particles are completely coated on all sides. Even if the top coating is worn away, the underlying color on the facets reflects through the clear glass matrix. The glass helps filter out UV light adding to the longevity of color.

Uses

Used in road demarcation and skid resistant surface applications. The colored aggregate is broadcast into an epoxy resin binder on concrete or asphalt surfaces. When applied, Ruby Lake Glass Road Demarcation System provides colorized warning system with anti-skid, non-fading, consistent color surface.

Table 1: Technical Data

Size:	1.2-3 mm
Environmentally Sound:	100% Post-Consumer Recycled Glass & Natural Pigments
Specific Gravity:	2.5
Hardness:	5.5 - 6.0 Mohs
Softening Point:	~1350°F
Bulk Density:	Avg 86lb/ft ³
Loss on Ignition	0.03%
Biochemical Oxygen Demand	0 PPM
Moisture Content	<1%
Reactivity	100% Acid Insoluble <3% Loss - Magnesium Soundness TCLP - EPA compliant
Physical & Chemical Composition	No Lead Panel Glass & Clear Soda Lime Glass
Shape:	Sub-Angular, Non-Porous
Physical Composition:	Amorphous Silica

Table 2: Testing When Applied with Resin Binder to Concrete or Asphalt Surfaces

Property	Requirement	Test Method
BPN	80	ASTM E303
Polished Stone Value	79-60	PAFV
FN40R	71	ASTM E274
Magnesium Soundness	2.45%	ASTM C-88
Acid Insolubility	100% Insoluble	ASTM D-3042

Packaging & Storage

Aggregate is available in one (1) ton super sacs, on a heavy-duty wood pallet or in 50lb bags.

Store in a cool, dry location and in their original bags. Store all bagged aggregates in a clean, dry location away from moisture.

The shelf life is greater than 12 months.

Safety

Handle one ton super sacs or 50lb bags on pallets with appropriate sized material handling devices for safe handling of the product.

The color coated glass particles do not have sharp edges. Handle with appropriate gloves to protect from angular shaped particles.

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied. We suggest that customer evaluate these recommendations and suggestions in conjunction with their specific application. 03-29-17

Summary of Testing Data on Color-Coated Recycled Glass Aggregate

Ruby Lake Glass, LLC (RLG) is an American company which has exclusive license in North and South America for the processes and products of Coloured Recycled Glass, Pty in Australia (CRG).

Test results achieved by RLG and CRG's product are summarized below. Copies of detailed test results are available on request.

The two most common questions about our color-coated recycled glass aggregates are:

How long does the color last? This is important to all interior and exterior applications, as they will be subjected to UV rays, weathering, and differing conditions of temperature and humidity.

How much skid resistance does the aggregate provide? This is relevant to road and walkway applications, where safety is an issue.

Color Fastness and Weather Durability:

CRG submitted eight panels with different colored aggregates for accelerated weathering tests to ASTM standards including conditions of aggressive QUV, heat and moisture. It is generally accepted in the industry that 1000 hours of QUV testing is equivocal to around 7 years of UV exposure. Each of the panels was situated so that only half the panel was exposed to weathering. After 2885 hours of testing, it was determined there was no visible deterioration in the appearance of any of the panels under exposure compared to unexposed sections.

Skid resistance:

British Pendulum Test: RLG had samples tested to evaluate initial laboratory friction properties of color coated glass aggregate applied on a board with a binder or resin. A British Pendulum (BPN) test was performed to estimate a correlation to a lock wheeled skid test using ribbed tire at 40 mph (FN40R).

The results of the laboratory testing and material observations regarding the friction properties of the subject material were a BPN of 80 and an estimated FN40R value of 71.

Polished Stone Value: Another standard that can be applied to our aggregate without regard to its application is a Polished Stone Value (PSV), or a Polished Aggregate Friction Value (PAFV). The PSV test utilizes a vertical wheel, the PAFV a horizontal wheel.

CRG had samples of their color-coated glass aggregate tested, as well as samples of calcined bauxite (an aggregate commonly used for road friction), for PAFV according to Australian standards. A value was measured in wet conditions before and after polishing. The bauxite's mean friction value before polishing was very high, at 105, with a PAFV after polishing of 79. The glass had a mean friction value before polishing of 80, and a PAFV of 60 after polishing. Different entities apply different requirements depending on the conditions of the location – however, generally, aggregate that has a PSV value over 60 is regarded as a skid resistant aggregate.

L.A. Abrasion Test: The Los Angeles (L.A.) abrasion test is a common test method used to indicate aggregate toughness and abrasion characteristics. RLG color coated aggregate was tested using ASTM C-131, Grading D resulting in an 11% loss through a #12 mesh sieve.

Aggregate Properties:

Magnesium Soundness: RLG color coated aggregate was tested using ASTM C-88 resulting a 2.45% loss

Acid Insolubility: RLG color coated aggregate was tested using ASTM D-3042 resulting in 100% insoluble.

** See attached documents for testing results.



CLJ1000 EPOXY BINDER

EPOXY BINDER

ITEM NUMBER CLJ1000

DESCRIPTION

CLJ1000 Epoxy Binder is a two-component, 100% solids, moisture-tolerant, low to medium viscosity, high strength, low modulus, multi-purpose liquid epoxy adhesive. It meets the current ASTM C881 and AASHTO M235, Type III, Classes B & C specifications.

WHERE TO USE

Used as a binder for High Friction Surface Treatment (HFST) on portland cement concrete, asphalt, steel, wood, and other substrates. Also used as a binder in epoxy mortar for patching. Used for bridge decks, parking ramps, bike lanes, skid-reduction areas and some floor coating applications.

ADVANTAGES

- May be used on damp or dry surfaces
- High strength, low modulus epoxy binder
- Made in America
- Convenient 1:1 mix ratio by volume
- A fast version is available for low temperature and fast cure application

COVERAGE

First Layer: 40 sq ft / gallon (1.0 m² /L); Second Layer: 20 sq ft / gallon (0.5 m² /L)

PACKAGING

- 2 gal / 7.6 L units
- 10 gal / 38 L units
- 500 gal / 950 L units

TECHNICAL DATA

Shelf Life:	2 years in original unopened container.
Storage Conditions:	40°F – 95°F (5°C – 35°C).
Condition material to:	65°F – 85°F (18°C – 29°C) before using.
Mix Ratio	1:1 by volume
Viscosity	1,500 cps @ 77°F
Gel Time (60 g mass)	20 minutes
Tack Free Time (73°F or 23°C)	3 to 5 hours
Tensile Properties (ASTM D638), 7 day cure	
Tensile Strength:	2,800 psi (19.3 MPa)
Tensile Elongation:	40%
Bond Strength (ASTM C882)	
2 day cure:	2,000 psi (13.8 MPa)
14 day cure:	2,800 psi (19.3 MPa)
Compressive Properties (ASTM D695), 7 day cure	
Compressive Strength:	5,000 psi (34.5 MPa)
Compressive Modulus:	110,000 psi (760 MPa)
Compressive Strength (ASTM C579)	
3 hour cure:	1,500 psi (10.3 MPa)
24 hour cure:	5,000 psi (34.5 MPa)
Bond Strength (ASTM C1583/ACI 503R)	300 psi (2.0 MPa)
Flexural Strength (ASTM D790)	3,000 psi (20.9 MPa)
Shrinkage on Cure (ASTM D2566)	0.2%
Thermal Compatibility (ASTM C884)	Pass
Heat Deflection Temperature (ASTM D648)	120°F (49°C)
Water Absorption (ASTM D570)	0.2% (24 hr)
Chloride Ion Permeability (AASHTO T277)	0.0 coulomb



CLJ1000 EPOXY BINDER

MINIMUM CURING TIME FOR TWO-COURSE OVERLAY APPLICATION (HOURS)

TEMPERATURE °F	60	65	70	75	80
COURSE 1	4	3	2	2	1
COURSE 2	6	5	4	3	3

MINIMUM CURING TIME FOR HIGH FRICTION SURFACE TREATMENT (HOURS)

TEMPERATURE °F	50	55	60	65	70	75	80	85	90
	8	7	6	5	4	3	3	2	2

APPLICATION

SURFACE PREPARATION: Surface must be clean and sound. Surface must be free of standing water. Remove curing compounds-latency, grease, rubber and any foreign matter or unsound surface. Shot blasting is the preferred method of preparation.

MIXING: Preferred method is to use automated installation equipment. When mix and apply manually, mix only the amount of material that can be used within its pot life. Proportion each component carefully into a clean pail. Mix thoroughly for 3 minutes with a Jiffy mixer on low speed (400-600rpm). Scrape the sides and bottom of the container. To prepare an epoxy patching mortar, slowly add 3-5 parts of oven-dried silica sand to 1 part of mixed epoxy by volume. Mix only until all aggregate is wetted out.

AS A BINDER FOR BROADCAST OVERLAY: Use a notched squeegee to spread epoxy at the specified rate. Broadcast oven-dried aggregate to refusal. Remove excess aggregate after initial cure. Apply second course of epoxy and aggregate.

TO PATCH AND GROUT: Prime substrate with neat mixed epoxy. Place epoxy mortar using trowels before primer becomes tack-free.

LIMITATIONS

Minimum substrate temperature is 50°F (10°C). Do not thin. Solvents will prevent proper cure. Use oven-dried aggregate. Material is a vapor barrier after cure.

CLEAN UP

Collect with absorbent material. Flush area with water. Dispose of in accordance with local, state and federal disposal regulations. Uncured material can be removed with CE Nature Cleaner or approved solvent. Cured material can only be removed mechanically.

HANDLING PRECAUTIONS

Refer to the Material Safety Data Sheet for CLJ1000 Epoxy Binder.

WARRANTY

Replace material if proved defective. This warranty and guarantee are expressly in lieu of all others, express or implied, including any implied warranty of merchantability or fitness for a particular purpose and may not be extended by representatives or any persons, written sales information, or drawing in any manner whatsoever. While the manufacturer recommends uses for the product based on tests believed reliable, no warranties, express or implied, or guarantee can be given as to particular methods of use or application, nor can performance be warranted, expressly or impliedly, or guaranteed under special conditions. Distributors, salespersons or company representatives are not authorized to extend or vary any warranties or guarantees beyond those outlined herein nor may the manufacturer's or seller's, limitation of liability be waived or altered in any manner whatsoever.



HIGH FRICTION BIKE and BUS LANE TREATMENT SPECIFICATIONS

GENERAL

Summary

Specification for placing a high friction surface treatment (HFST) onto an asphalt concrete pavement.

The HFST consists of a polymer resin binder with a 100% Recycled Color Coated glass topping.

Submittals

Submit a HFST Quality Control Plan (QCP)

The HFST QCP must include:

1. Description of equipment for placing HFST
2. Method for protecting areas not to receive HFST
3. Cure time estimates for HFST
4. Storage and handling of HFST components
5. Disposal of excess HFST and containers
6. Contingency plan for possible failure during the HFST application

Submit a material safety data sheet (MSDS) for each shipment of HFST components before use.

Submit a certificate of compliance for the polymer resin binder and the 100% Recycled Color Coated Glass Aggregate.

MATERIALS

Polymer Resin Binder

Provide a polymer resin binder which holds the aggregate firmly in place, and which meets the following requirements.

Material Specifications:

Property	Requirement	Test Method
Ultimate Tensile Strength	2650 psi min.	ASTM D638
Elongation at break point	30% min.	ASTM D638
Compressive Strength	1600 psi min.	ASTM D695
Water Absorption	1.0 % max.	ASTM D570
Shore D Hardness, min. 77°F	65-75	ASTM D2240
Viscosity	1000-3000 mPa	ASTM D2393
Gel Time, minutes	15-45 min.	ASTM C881
Cure Rate	3 hrs. max.	ASTM D1640, 0.2" thickness
Mixing Ratio	As recommended by manufacturer	N/A

Aggregate

Supply a 100% recycled Color Coated Glass Aggregate. The aggregate is to be clean, dry, and free from deleterious matter. The aggregate must meet the following requirements.

Glass Topping Requirements**Life Cycle Performance**

Color Coated Glass Aggregate will be UV fade resistant for a minimum of five years.

Skid Resistance

Color Coated Glass Aggregate System will have an initial friction value of 70.

Material Specifications:

Characteristic	100% Recycled Color Coated Glass Aggregate
Size Range Available {mm}	0.8-1.2, 1.2-3.0
Recycled Material	100%
Color Selection	Varied, customized
Color Retention	100%
Environmentally Sound:	100% % post-consumer recycled glass
Bulk Density:	Avg 86 lb/ft ³
Specific Gravity:	2.5
Hardness:	5.5 - 6.0 Mohs
Softening Point:	~1350°F
Physical Composition	Panel Glass Non-Lead, Amorphous Silica
Shape:	Sub-Angular, Non-Porous

PRE-CONSTRUCTION**Pre-construction Conference**

Schedule a pre-construction conference with the Engineer at a mutually agreed time and place. Make the arrangements for the conference facility. Be prepared to discuss the trial HFST requirements.

Attendance at the pre-construction conference is mandatory for:

1. HFST Foreman
2. Project Superintendent

CONSTRUCTION

Attendance during construction activities is mandatory for:

1. HFST Foreman
2. Project Superintendent

Surfaces must be clean, dry, and free of all dust, oil, debris and any other material that might interfere with the bond between the polymer resin binder material and existing surfaces. Adequate cleaning of all surfaces will be determined by the Engineer.

Remove pavement markers and delineation within the area to receive HFST, prior to placing polymer resin binder.

Perform street sweeping before placing pavement markers and delineation.

Temporary or permanent pavement markers and delineation must be in place before lanes are open to public traffic.

The HFST must conform to the following:

1. Do not apply HFST to asphalt pavement surfaces that are less than 30 days old, unless sandblasted prior to application.
2. Do not apply the polymer resin binder on a wet surface or when the ambient temperature is below 50°F or when the anticipated weather conditions would prevent the proper application of the surface treatment as determined by the Engineer.
3. Surface preparation work, surface temperature, placement of the HFST must be in conformance with the binder supplier's specifications, these special provisions and as approved by the Engineer.
4. The minimum spread rate for polymer resin binder is 0.28-0.32 gal/sq. yd.
5. The minimum spread rate of retained aggregate is 13-20 lb/sq. yd.
6. HSFT must be allowed to cure for the minimum duration as recommended by the supplier's specifications and during that time the application area must be closed to all vehicle and contractor equipment traffic.