

INTENT

To provide a system for the sealing steel, aluminum, galvanized, and concrete or masonry structures to stop inflow, infiltration, and exfiltration where there is evidence of hydrogen sulfide (biogenic) corrosion on horizontal, vertical, and overhead surfaces in sanitary manholes, wet wells, and valve vaults.

1 GENERAL

1.1 SCOPE

This specification shall govern all work, materials, and equipment required for coating previously installed structural substrate in highly corrosive environments for the purpose of eliminating infiltration and protecting the underlying structure from environmental corrosives as a result of applying SG Mastic, a 2-component, solvent-free, moisture insensitive epoxy system.

1.2 PROCEDURES

Described herein are the procedures to be followed prior, during, and after the use of SG Mastic. The applicator, approved and trained by the manufacturer, shall furnish all labor, equipment and materials for applying SG Mastic, a 2-component, solvent-free, moisture insensitive epoxy system, with equipment specially chosen for the application. All aspects of the installation shall be in accordance with the manufacturer's recommendations and per the following procedures to include:

- A. Materials
- B. Environmental requirements
- C. Equipment
- D. Safety precautions
- E. Application
- F. Curing
- G. Clean up
- H. Verification
- I. Limited warranty

2 MATERIALS

2.1 PHYSICAL PROPERTIES

SG Mastic epoxy sealant provides a non-structural, corrosion-resistant covering over CMS 10K cementitious mortar, steel, galvanized, and aluminum to protect the underlying structure from exposure to destructive gasses prevalent in manholes, lift stations, valve vaults, or other sewer treatment environments. It is packaged and shipped as 2 components (Component A and Component B) which are mixed to produce the final epoxy product. The following table lists SG Mastic's important physical properties:

Mix ratio	Pre-proportioned units
Color after mixing	Gray
Pot life, 200 grams	40 minutes @ 77°F
Generic type	Amine-cured epoxy
Solids by volume	100%
VOC	0 lbs/gallon
Viscosity @ 25°C	225,000 cps
Coverage per gallon	16 ft ² per gallon @ 100 mils
Number of coats	1 recommended
Coat thickness	100 mils minimum
Flash point	450°F

2.2 PERFORMANCE SPECIFICATIONS

Once cured, SG Mastic shall meet the following performance specifications:

Hardness	ASTM D2240		Shore D 85
Compressive strength	ASTM D695	7 day	13,600 psi
Tensile properties	ASTM D638	Strength	7680 psi
		Elongation at break	5 to 7%
		Modulus of elasticity	7.5 X 10 ⁵ psi
Flexural properties	ASTM D790	Strength	13,200 psi
		Modulus	733,200 psi
Bond Strength	ASTM C882	14-day moist cure	3300 psi
Shear strength	ASTM D732		4600 psi
Adhesive strength	ASTM D4541	Concrete substrate failure @ 40 mils	250 psi
IZOD pendulum impact resistance of plastics	ASTM D256 Method A		C (complete break)
Permeability	ASTM E66-96	40 mils	0% permeance @ 42 days
Abrasion resistance	ASTM D4060	1000 cycles	Wt. loss 86.3 mg

2.3 CHEMICAL RESISTANCE

The following table lists resistance to chemicals for cured SG Mastic, reported in agent % increase (decrease) for Chemical & Solvent Resistance (ASTM D543 60T) testing of 3" X 1" X 0.125" sample. *

Methylated spirits	0.514
Distilled water	0.09

10% aq. sulfuric acid (H2SO4)	0.136
70% aq. sulfuric acid (H2SO4)	4.10
Gasoline - 90 octane	0.01
30 wt. SAE motor oil	0.02
Isopropyl alcohol	0.11
5% salt water	0.10
20% nitric acid (HNO3)	2.7
10% sodium hydroxide (NaOH)	0.086
50% sodium hydroxide (NaOH)	0.12
Methyl ethyl ketone	D
Xylene	D
10% acetic acid (HOAc)	6.14
10% hydrochloric acid (HCl)	1.40
30% hydrochloric acid (HCl)	0.088
20% ammonium hydroxide (NH4OH)	0.84
10% ammonium hydroxide (NH4OH)	0.81
95% ethyl alcohol	0.37
Acetone	2.1
Ethylene dichloride	1.5
Toluene	1.4
JP-4 fuel	(0.01)
10% citric acid	0.80
40% chromic acid	(5.82)
10% phosphoric acid	.11

* Testing performed by AZS Corporation, 2525 S Combee Road, Lakeland, Florida, 33801.

2.4 OTHER MATERIALS

No other material shall be used with SG Mastic without prior approval or recommendation from Rainstopper, LLC.

3 ENVIRONMENTAL REQUIREMENTS

3.1 LOWER TEMPERATURE LIMITATIONS

No application of SG Mastic shall be made if ambient temperature is below 50°F and surface temperature is 5° below wet bulb temperature reading. No application shall be made to frozen substrates or if the substrate is expected to freeze within 24 hours after application.

3.2 UPPER TEMPERATURE LIMITATIONS

Precautions shall be taken to keep the mix temperature at time of application below 90°F. Chill with ice if necessary.

3.3 MOISTURE LIMITATIONS

Exposing SG Mastic to dew or rain while uncured may impair the curing process as well as the adhesion of subsequent coats.

3.4 OPTIMAL ENVIRONMENT

For optimum application, bring product to between 70° and 90°F and maintain in heat-controlled storage prior to mixing and application.

4 EQUIPMENT

4.1 APPLICATORS

Apply to required thickness using gloved hand or spatula.

4.2 OTHER EQUIPMENT

If using other equipment, please contact Rainstopper (see footer).

5 SAFETY

5.1 PRECAUTIONS

Take these precautions during application and before coating dries.

NOTE: Any mixture of *Components A* and *B* will inherit the associated hazards of each individual component.

5.2 STORAGE

KEEP OUT OF REACH OF CHILDREN. Store in a cool, dry environment.

5.3 SPILLAGE

In case of spillage, absorb and dispose of in accordance with local applicable regulations.

5.4 INHALATION

Avoid breathing of vapor or spray mist. Use with adequate ventilation during application and drying. In tanks and other confined areas, use only with adequate forced air ventilation to prevent dangerous concentrations of vapors which could cause death from explosion or inhalation. Use fresh air masks, clean protective clothing, and explosion-proof equipment. Follow OSHA regulations regarding ventilation and respiratory equipment.

5.5 CONTACT

Avoid contact with eyes and skin. Use a barrier cream on exposed skin. Use protective eyewear. Wash thoroughly after handling SG Mastic. For contact with eyes, flush immediately and continuously with water for 15 minutes and call a physician.

5.6 INGESTION

Do not take internally. If swallowed, call a physician immediately. Do not induce vomiting.

5.7 IGNITION HAZARD

In case of fire, use dry chemical, foam, water fog, or CO2 to extinguish flames.

6 APPLICATION

6.1 SURFACE PREPARATION

6.1.1 STEEL SURFACES shall be prepared in accordance with "Near-White Metal Blast Cleaning" (SSPC-SP 10-63T). Use proper type and size abrasive to attain an average profile depth of 2.0 mils. Do not reuse sand or flint abrasives. Grit or shot abrasives must be cleaned of contaminants before reuse. Blow dust and grit from surface with clean, dry air. Coat within 8 hours and before rust or contamination occurs. Apply SG Mastic directly to properly cleaned steel, or over recommended primers, as specified. For immersion service, round all sharp edges on welds to a smooth curve and remove all weld spatter before blast cleaning.

6.1.2 CONCRETE SURFACES shall be clean, dry, properly cured and free from curing compounds, oil, grease, dirt, chemical contaminants, waxes, as well as previously applied coatings which are incompatible with SG Mastic. Brush or water blast to provide an etched surface and to remove contaminants and latents. Remove dust before coating. Apply SG Mastic as specified.

6.1.3 ALUMINUM AND GALVANIZED SURFACES shall be prepared as follows: remove all oil, grease and other contaminants, then lightly brush blast or etch with specified pretreatment. Prime with recommended primer, then apply SG Mastic.

6.2 MIXING

6.2.1 Mix only complete units. The container for *A Component* is short filled to allow the addition of *B Component*. Add *B Component* to *A Component* container and thoroughly blend with jiffy mixer for two to three minutes. Allow to stand a minimum of five minutes prior to application. DO NOT THIN the mixture.

6.2.2 Usable pot life of mixed material is a function of material temperature. Use within time/temperature limits given in the table below.

Pot life	50°F to 59°F	1 hour
	60°F to 79°F	.75 hour
	80°F to 100°F	.5 hour

6.3 APPLICATION

6.3.1 Apply to required thickness using gloved hand or spatula. After material has achieved an initial set (approximately 30 to 40 minutes), using a clean glove, dip gloved hand in recommended solvent. Solvent applied via glove will level previously applied SG Mastic to desired smoothness. Keep glove constantly wet with solvent. Solvent on surface will evaporate quickly.

6.3.2 Where two coats of SG Mastic are required to achieve the recommended film thickness, the interval between coats should be as short as possible. To insure maximum inter-coat adhesion, it is recommended that: (1) the next coat be applied as soon as possible, after the previous coat is firm, and (2) if the previous coat has cured beyond the maximum recoat time given in the table below, uniformly abrade the surface by brush blasting or mechanical grinding to provide an adequate mechanical bond before recoating.

Dry time	To touch	4 hours
	Recoat	When firm
	50°F to 59°F	16 to 72 hours
	60°F to 79°F	12 to 18 hours
	80°F to 100°F	8 to 12 hours

CURING

7.1 TIME

Following application of the final coat, see the table below for detailed information on recommended cure time. Cure times are proportionately shorter at elevated temperatures and longer at lower temperatures. For immersion service, curing time is 12 hours at 77°F or higher.

Dry time	50°F to 59°F	16 to 72 hours
	60°F to 79°F	12 to 18 hours
	80°F to 100°F	8 to 12 hours

8 CLEAN UP

8.1 SOLVENT

Clean all equipment immediately after use with Rainstopper #5 Cleaner or xylene.

9 VERIFICATION

9.1 CONTINUITY TESTING

SG Mastic shall be tested for holidays at the specified voltage using a holiday detector to verify the continuity of fully cured film. A suitable device is the Tinker-Razor Model M-1. Consult equipment manufactures voltage-per-mil-thickness of applied coating recommendation. Holiday areas should be sanded or brush-blasted, then recoated over abraded areas only.

10 LIMITED WARRANTY

10.1 LIMITATIONS

Rainstopper, LLC warrants that this product was produced in conformity with its standard specifications or formulations within recognized tolerances, free of adulteration or contamination, and that the product will perform in accordance with representations in SG Mastic literature when properly applied in strict conformance with the printed instructions on container and prescribed in the specification and when applied to a properly prepared surface.

10.2 REMEDY

The sole remedy of the purchaser shall be replacement of the product or refund of the purchase price of the product if any defect in material or variance in the product beyond recognized tolerances in the specifications is found to exist.

No other remedy including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss shall be available to the purchaser.

10.3 DISCLAIMER

THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPHS SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.