



GEMTHANE® “S”

TECHNICAL DATA

SEVERE SERVICE INDUSTRIAL GRADE COATING

THE PRODUCT AND ITS USES

GemThane® “S” is a *single component-plus-catalyst* high build polyurethane coating for the protection of concrete, steel and wood. It provides an extremely durable and seamless surface coupled with excellent resistance to abrasion and chemicals. When properly applied by a coating professional or other knowledgeable user, GemThane® “S” will provide a pinhole-free, monolithic barrier which completely protects the substrate beneath. It will cure at a wide range of ambient temperatures.

This non-toxic protective film is designed for use in warehouses, processing plants of all kinds (from foods to chemicals) and any other area exposed to corrosive attack, heavy vehicular traffic or other forms of demanding service conditions. It is suitable for direct food contact, and continuous immersion such as truck/car washes, holding tanks and containment areas. Applications carried out for consumers may include any steel or other structure exposed to wet, underground or otherwise aggressive service, e.g. pool components, dock pilings and garage floors. Depending on the porosity of the substrate, applying two coats at a rate of 4 to 5 square meters per litre (200 to 250 square feet per gallon) will yield 6 to 8 wet mils or 4.5 to 6 dry mils (1 mil = 25 microns). For continuous immersion, three coats are suggested. Product will fade and chalk in direct sunlight; where UV resistance is critical, ask your GemThane Distributor to recommend a suitable finish coat.

For ultimate abrasion protection, specify the CM (Ceramic Modified) version of GemThane® “S”. This version contains Nano-Shield™, an additive which will double or triple the abrasion resistance of products into which they have been formulated.

TECHNICAL INFORMATION

PROPERTY	TEST DESCRIPTION	RESULTS
Application Temperatures	N/A	-15°C (10°F) to 65°C (150°F)
Pot Life	@20°C (70°F)	20 minutes to 2 hrs - depends on choice of catalyst
Initial Setting Time	@20°C (70°F)	30 to 120 minutes — depends on choice of catalyst
Recoat Time ¹	@20°C (70°F)	12 to 24 hours — depends on choice of catalyst
Solids Content	ASTM D-1259	72%
Volatile Organic Compounds (VOCs)	ASTM D-2369	282 grams / litre
Theoretical Coverage	N/A	625 m ² / litre / micron (1150 ft ² /US gal / mil)
Adhesion	ASTM D-4541 (SSPC 5)	Greater than 1500 p.s.i.
Hardness	ASTM D-2240 Shore D	60 +/- 5
Flexibility	ASTM D-522	180° over 1” mandrel
Abrasion Resistance	ASTM D-4060 (CS-17 wheels, 1 kg weight, 1000 revolutions)	60 mg loss (standard version) 20 mg loss (CM version)
Permeability	ASTM E-96 (@15 mils)	1.4 x 10 ⁻³ perm inches
Resistance to Cathodic Disbondment	CSA Z-245 (65°C, 48 hours, 20 mils)	Excellent; less than 10 mm
Chemical Resistance	ASTM D-543	Excellent; see Chemical Resistance Chart
Dielectric Strength	ASTM D-149	Greater than 200 volts per mil
Impact Resistance	ASTM G-14 (20 mils)	Greater than 40 in. lb.
Colours		Black, Gray, Off-White

1. However, recoat window varies depending on ambient, coating and substrate temperatures and on coating thickness.

NOTE: All statements, technical information and recommendations contained herein are typical of results obtained under laboratory conditions and are not intended to be used as contract specifications. For specification guidelines please contact Madison Chemical. The information contained herein is believed to be accurate as of the date of publication. Madison reserves the right to change product specifications without notice.

APPLICATION INSTRUCTIONS

NOTE: CONTACT MADISON FOR DETAILED [APPLICATION INSTRUCTION BULLETIN](#) (ALSO AVAILABLE ONLINE)

A. SURFACE PREPARATION

- 1) General – Ensure that surface is clean, dry and free of any traces of oil, grease, dust, dirt and other foreign contaminants. Also ensure that all weld splatter and other surface irregularities are removed. Do not proceed if condensation or dew is present or likely or when inclement weather is approaching. For severe service applications, check dew point. Coat a test area if relative humidity is greater than 85% and check for foaming, pimpling and other moisture-related defects. Thoroughly roughen prior coatings (sandblast or coarse sandpaper) to a sharp, angular profile of at least 2 mils (.002" or 50 microns).
- 2) Metal – For severe service, prepare by abrasive blasting to a profile of 2 1/2 to 3 mils. In all other cases, simply soak surface with GemBond™ Surface Conditioner / Adhesion Promoter (see Application Instruction Detail for GemBond™ for details). On galvanized metal, GemBond™ may be used for all purposes, including severe service. Traditional hand tool and power tool cleaning also works well with GemThane® "S".
- 3) Concrete – The concrete must be fully cured. The use of GemBond™ will eliminate the need to sandblast or acid etch the concrete; see GemBond™ Application Instruction Bulletin for details). Depending on porosity, concrete may need to be filled. For example, where bug-eyes exist, Madison PrepCrete™ should be used to fill same before proceeding. To fill smaller holes, use a thin mixture of PreCrete™ or GemThane® MG 220™ Epoxy Sealer/Coating. On concrete floors and for immersion service, use GemThane® MG 201™ Penetrating Epoxy Sealer for best long term results. As a less-desirable alternative, thin first coat of GemThane® "S" with 10% to 20% of VR-2 Reducer™ before applying to prepared concrete surface. Concrete block can be coated directly using GemThane® "S" but, for a pinhole-free result, treat with Madison PrepCrete™ first. Previously painted concrete must be abrasive blasted or thoroughly roughened (e.g. coarse sandpaper).
- 4) Wood – Do not coat green or damp wood. On most new wood, sand thoroughly with 80 to 100 grit sandpaper to open up the pores. When coating smooth composites such as MDF, use a finer grade of sandpaper (start with 100-120 grit). Then clean surface with a rag soaked in Madison VR-2 Reducer. For best results, use 10–20% VR-2 Viscosity Reducer™ in the first coat of GemThane® "S", then apply subsequent coat(s) at full strength. Alternatively, seal wood with GemThane® MG 201™ Penetrating Epoxy before proceeding with topcoat (this is the preferred option where wood will have pedestrian traffic or similar direct contact). For previously painted surfaces, see "General" above. On old wood, painted or not, pressure wash at 1,000 p.s.i. or greater with injection of GemBond™ or an industrial degreaser injection.

B. APPLICATION OF COATING

- 1) Wear rubber gloves, safety goggles and coveralls as GemThane® "S" is difficult to remove once it begins to set and cure. Before application, power stir GemThane® "S" to disperse any settling that may have occurred. Add approximately 5% of GemThane® C-10 Catalyst (2 to 4 hour pot life) and thoroughly mix into GemThane® "S" resin for 3 to 5 minutes. Other catalysts are available if faster curing is required but they will reduce the pot life. If thinning, use up to 15% VR-1 or VR-2 Viscosity Reducer™.
- 2) GemThane® "S" can be applied by brush, roller or single component airless spray equipment. If using a roller, use even backwards and forward strokes to achieve a continuous film. Cross roll to eliminate any ridges but do not overwork the surface as bubbling or blistering may occur. When spraying, use multiple light passes to avoid sags and pinholes.
- 3) For optimum intercoat adhesion, recoat when previous layer is tacky to the touch - within 24 hours. If recoat time is exceeded, sand previous layer until the gloss is removed from the entire coated area, clean, then apply the next coat. Allow GemThane® "S" to cure for a minimum of 24-48 hours before putting into service.

C. CLEAN-UP AND STORAGE

- 1) GemThane® "S" will react with humidity and moisture. Keep containers tightly sealed and store upside down. Avoid dropping or subjecting the material to strong force. For clean-up, use VR-1 or VR-2 Viscosity Reducer™. Other solvents may react with GemThane® "S".
- 2) Store between 10°C (50°F) and 27°C (80°F). DO NOT FREEZE. Use product within 6 months of receiving.

HEALTH AND SAFETY

GemThane® "S" is intended for use only by persons experienced in the application of industrial-grade polymer coatings. It contains no monomeric isocyanate but contains industrial solvents which will cause respiratory distress in some people. Flammable; avoid open sparks and flames. Indoors, wear a cartridge mask and provide ample ventilation. If swallowed, DO NOT induce vomiting as this will cause additional throat irritation; contact physician. If splashed on skin, remove immediately with GemThane® VR-2 Reducer™ or with rubbing alcohol and then wash with soap and water. If splashed in eyes, wash liberally with clean water and contact physician; temporary irritation of eyes may last several days. Product contains no proven carcinogens or mutagens. However, prudence dictates that applicators use rubber gloves, safety goggles and protective clothing. Resins are inert when cured. See MSDS for more information. Review the [Application Instruction Bulletin](#) for additional safety information.

THE GEMTHANE® "TWICE THE LIFE"™ WARRANTY

Madison warrants that, when properly applied, this product will outlast average consumer paint products by a factor of at least 2:1. Warranty coverage is limited to replacement of failed coating. Madison accepts no responsibility or liability for any other loss, claim, damage, injury or expense, direct or consequential, in contract or negligence. This product replacement warranty is in lieu of any other right, warranty, guarantee or condition, statutory or otherwise, expressed or implied, whether as to fitness for a particular purpose or as to merchantable quality or otherwise.

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