EMSOL® MRP-5000 MRP-5000HB

TECHNICAL AND APPLICATION DATA

FLEXIBILIZED EPOXY BARRIER COATING

CORROSION/EROSION PROTECTION

DESCRIPTION

EMSOL® MRP-5000 and 5000HB are two component flexibilized epoxy barrier coatings to provide outstanding protection against corrosion and erosion of metallic substrates, including continuous immersion service. Next generation Surface Tolerant (ST) formulation can be applied underwater. Formulated for excellent chemical and weather resistance with high adhesion even when applied under adverse conditions and with minimum surface preparation. **EMSOL® MRP-5000HB**, is a higher thixotropic version (higher viscosity) designed specifically for underwater applications.

TYPICAL USES

- Internal coating for primary containment, both metal and concrete.
- Protection of secondary containment areas
- Equipment protection; internal and external coating.
  - Pumps, heat exchangers, structures and pedestals.
- Internal and external coating of pipes.
- Protection and seal of cooling towers.

PHYSICAL AND MECHANICAL PROPERTIES

Compression (ASTM C-109) ..... 90 MPa (13,000 psi)
Abrasion (ASTM D4060 @ Cs17, 1kg) ..... 1.2 mil/1k cycles
Service Temperature
Dry*..... 104°C (220°F)
Dry, Peaks*..... 121°C (250°F)
Wet ..... 80°C (175°F)
*Temperatures > 93°C will cause discoloring without affecting performance
Adhesion (ASTM D4541)
Dry, blasted steel..... 176 Kg/cm^2 (2,500 psi)
Dry, sanded steel..... 141Kg/cm^2 (2,000 psi)
Blasted steel under immersion (5 days @ 21°C)... 176 Kg/cm^2 (2,500 psi)
Hardness (ASTM D2240) .....Shore D 83-90
Solids by Volume..... 100%

RECOAT/CURE SCHEDULE

Temperature	Minimum Overcoating	Maximum Overcoating	Immersion*
10°C (50°F)	8 hours	14 days	7 days
25°C (77°F)	4 hours	14 days	72 hours
60°C(140°F)	60 minutes	N/A	4 hours
* Immersion in aqueous solutions and hydrocarbons			

CHEMICAL RESISTANCE

Acetic Acid ≤ 10%	Citric Acid	Deionized water
Gas, Diesel	Hydrochloric Acid ≤ 32%	White Liqueur
Ammonia Nitrate	Urea	Black Liqueur
Milk	Phosphoric Acid ≤	Green Liqueur
Copper Sulfate	Potassium Hydroxide	For more information please refer to Chemical resistance Chart.
Hydrogen Sulfide (H_2S)	Sodium Hydroxide	
Potassium Chloride	Sodium Phosphate	
Sodium Chloride	Acid petroleum	
Sodium Hydroxide	Sulfuric acid ≤ 50%	

FEATURES

- Excellent corrosion and erosion resistance
- Easy to mix and use
- Excellent pot life
- Fast cure 7-10 hours
- Resistant to freezing temperatures
- UV Stable
- Resistant to thermal shocks.
- 100% solids by volume, solvent free
- Non toxic
- Low odor during application
- For use under adverse application conditions, including underwater.

COLORS

Light grey	Black	Blue
Medium grey	Brick Red	White

UNIT SIZE

EMSOL MRP-5000:
- 1 Gal /12.5 lb (3.785 L /5.7 kg)
- 4 Gal /50 lb (15.14 L /22.73 kg)

EMSOL MRP-5000HB:
- 1 Gal /12.5 lb (3.785 L /5.7 kg)

THEORETICAL COVERAGE

- 7.4 m^2 @ 500µ (80 ft^2 @ 20 mils) per Gal

RECCOMENDED THICKNESS

- Minimum ≥ 0.50 mm (20 mils) 2 coat application

MIX RATIO

Weight	Volume
N/A	3 : 1

POT LIFE

5°C (41°F): 8.5 Hours
25°C (77°F): 2 Hours
33°C (92°F): 50 Minutes

SHELF LIFE

- 1 year @ 24°C (75°F) in sealed container

SURFACE PREPARATION

Metallic Substrates:

- Clean/Degrease all steel surfaces as per standard SSPC-SP1. Use a suitable cleaner/degreaser such as: Xylene, MEK, Acetone, Toluene, Isopropyl Alcohol >91%. Do not use a cleaner/degrease or cloth that could leave a residue.
- To obtain maximum adhesion, clean surface with abrasive blasting to achieve a minimum cleaning level of "Near White Metal Finish" NACE-2, SSPC-SP10, SA 2.5, and a 75-100 µm (3-4 mils) angular anchor profile.
- Surface preparation with power tools and/or hand tools, grinders, sanders, etc. are acceptable, but adhesion will decrease.
- Apply product on prepared surface before flash rust forms. If there is a chance of rust appearance before application, contact your Emsol® distributor to recommend a compatible primer and/or rust inhibitor.

Non-Metallic Substrates (concrete, fiber glass, etc.):

-Inspect substrate to make sure it is firm and sound. If paint/coatings are present, it is recommended to remove to expose original substrate. If product is applied over previous paint/coating, adhesion will be limited to previous coating system. Verify previous paints/coating for adhesion > 21 kg/cm2 (300 psi) as per ASTM D-4541.

- Clean/Degrease all surfaces using a suitable cleaner/degreaser such as: Xylene, MEK, Acetone, Toluene, Isopropyl Alcohol >91%. Do not use a cleaner/degrease that could leave a residue. Concrete surfaces can be prepared using high-pressure water, combined with detergents and/or emulsifying soaps.

-Shiny, flat or painted surfaces should be sanded remove all gloss and generate an anchoring profile comparable to grain #80 sandpaper or rougher.

-Allow new concrete to cure for a minimum of 28 days or until the moisture content is below 6%, otherwise pre-treat the surface with EMSOL CS-1000. Clean according to standard ASTM D4258 with a surface profile according to ASTM D4259.

Underwater Substrates:

-Inspect substrate to make sure it is firm and sound

-Clean to eliminate dirt, marine fouling and contamination according to SSPC-SP2. Ideally, surface preparation, should be performed with abrasive blast and/or water pressure, modified for underwater applications.

PRODUCT MIXING

Mix only the amount of product that can be applied without exceeding the pot life of the product. The mixing ratio by volume is 3:1. Combine the correct volumes of components A and B in a clean, dry container. Use a "Jiffy" type mixing paddle and a drill at low speed (300-500 rpm) and mix until a homogeneous color is obtained. Avoid entrapping air in the mixture. Scrape the bottom and walls of the mixing container to ensure the product is completely mixed. Unmixed product will not cure and/or perform as indicated. If product´s temperature is below 15°C (59°F), it is recommended to preheat the components to a maximum temperature of 30°C (86°F) to ease mixing of the product.

PRODUCT APLICATION

Application with brush, or spatula:

Apply the product by hand using brushes and/or spatulas. Initially, rub with force a small amount of the mixed product into the prepared surface making sure to achieve 100% contact. Completely fill-in any rough or imperfect parts of the substrate. Apply the rest of the product until you achieve the required thickness avoiding entrapping air.

It is recommended **EMSOL MRP-5000** be applied in multiple coats rather than a single thick coat. The maximum overcoating time without requiring additional surface preparation is14 days @ 25°C. However, it is recommended that the surface be cleaned as per SSPC-SP1 to insure that the surface is not contaminated before additional coats are applied. If the overcoating window/time has been exceeded, sand or abrasive blast until 100% of the surface has a matte finish. Wipe clean with solvent according to SSPC-SP1 and let it dry. Apply the additional coat(s). This same process is recommended when making touchups, repairs or corrections where necessary.

Spray Application:

EMSOL MRP-5000 can be sprayed using an airless plural or single component (hot-pot) rig using the following parameters:

Parameter	Conventional	Plural
Tip Size	0.023"- 0.027"	0.025"- 0.029"
Pump (minimum size)	56:1	56:1
Hoses	50ft x 3/8" ID (min)	50ft x 1/2"D.I. (min) A= ½"(D.I.) y B= ½"(D.I.)
Whip	10ft x ¼"- 3/8" ID (min)	20ft x ¼"- 3/8" D.I. (min)
Static Mixer	2 x (1/2"D.I. x 12"largo)	2 x (1/2"D.I. x 12"largo)
Temperature	N/A	A=54-75°C, B=32-35°C
ID = Internal diameter:		

Underwater Application:

Place properly mixed **EMSOL MRP-5000HB** inside a "Ziploc" type plastic bag, remove all air and ensure is completely sealed to minimize water contact while transporting the product to the application spot/area. Cut a corner of the bag and squeeze to apply and spread product using a short/stiff bristles brush, or painting glove. Apply multiple thin coats until recommended film thickness is achieved. For pipes, it is recommended to apply **EMSOL MRP-5000HB** along with Emsol´s Reinforcing Fabric to wrap around the pipe and achieve a higher resistance system.

CLEAN UP

Mixing and application tools should be cleaned immediately after use with suitable solvent such as MEK, Xylene, Toluene, Acetone or Isopropyl Alcohol >91%.

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