

Technical Data Sheet

DESCRIPTION

EMSOL® MRP-1350 is a ceramic coating used for the protection of fluid handling equipment exposed to corrosion and abrasive wear. Easy-to-use, two-component product designed to be applied by hand or atomized/sprayed with airless equipment.

TYPICAL APPLICATIONS

- Repair/sealing of metal tanks
- Protection of Heat Exchangers:
 - Tube sheet, water boxes, channel heads, deflectors, flanges
- Protection of Centrifugal, Axial, Vacuum Pumps, etc.:
 - Casings/volutes, impellers, cones
- Pipe protection:
 - Corrosion, eroded areas, low thicknesses, weld beads
- Protection of fluid handling equipment subject to abrasion due from suspended solids
- Wrapping and protection of tail/propulsion shafts in ships and boats

PHYSICAL & MECHANICAL PROPERTIES

Compressive Strength (ASTM D695)	103 MPa (15,000 psi)
Flexural Strength (ASTM D790)	90 MPa (13,000 psi)
Abrasion Resistance (ASTM D4060 @ Cs17 x 1K cycles)	23mg
Coefficient of Thermal Expansion (ASTM C531)	(1.1x10 ⁻⁶ °F)
Thermal Stability Loss after 48 hours @ 149°C (300°F)	0.3 mg
Adhesion (ASTM D4541)	179 Kg/cm ² (2,550 psi)
Hardness (ASTM D2240)	> 80
Density	13.42 lb/gal
Volatile Organic Compounds	0 g/lit (0 lbs/gal)

CHEMICAL RESISTANCE

Acetic acid ≤ 10%	Ammonium Hydroxide ≤ 25%	Isopropyl alcohol
Potable and process water	Potassium Hydroxide 50%	Gasoline
Seawater	Alkaline/bases	For more information, see the chemical resistance chart.
Hydrogen Sulfide Gas (H ₂ S)	Diesel	
Diluted Organic Acids	Copper sulphate	
Sodium Hydroxide 50%	Sulfuric acid ≤ 50%	

HIGH PERFORMANCE CERAMIC COATING

BENEFITS

- Excellent resistance to corrosion and erosion
- Easy to mix and use
- Excellent working time
- Fast setting (7-10 hrs.)
- Resistant to freezing temperatures
- Resistant to thermal shocks
- 100% solids by volume
- It is not toxic
- Has no offensive odor during application

COLORS

Gray and Blue
Finish: Gloss

PRESENTATIONS

- 4 x 0.2 gal (4 x 750ml) Kits
- 2 x 1 gal (2 x 3.78 L) Units

THEORETICAL COVERAGE

- 3 m² @ 250µm (32 ft² @ 10 mils) per 0.2 gal unit
- 14.8m² @ 250µm (160 ft² @ 10 mils) per 1 gal unit

RECOMMENDED FILM THICKNESS

- Minimum ≥ 0.50 mm (20 mils). It is recommended to

MIXING RATIO

By Weight	By Volume
5:1:1	3:1

WORKING LIFE

Temperature	Time
4°C (40°F)	8.5 hrs
24°C (75°F)	2.5 hrs
33°C (92°F)	55 minutes

CURING TIME

	21°C (70°F)
Overcoat:	24 hrs
Light Loading:	2 days
Immersion:	3 days
Chemical contact:	7 days

SERVICE TEMPERATURE

Dry:	120°C (248°F)
Spills/Splashes:	82°C (180°F)
Immersion:	76°C (170°F)

SHELF LIFE

- 2 years

SURFACE PREPARATION

Metallic Substrates:

"ONLY APPLY OVER CLEAN, DRY, SOLID/FIRM AND ROUGHENED SURFACES"

1. Clean/remove contamination or dirt with solvent according to the procedure established by the SSPC-SP1 standard (solvent wash). Use a fast-evaporating solvent/degreaser that leaves no residue. Acceptable degreasers such as: Xylene (dimethylbenzene), MEC (methyl-ethyl ketone), Acetone (propanone), Toluene, Isopropyl Alcohol >91%. Decontaminate the surface with a brush and/or lint-free cloth (DO NOT USE TOWN) soaked in degreaser.
2. To obtain the best possible adhesion, prepare the surface using abrasive blasting (grit-blast). Use only angular abrasives such as aluminum oxide, steel slag, copper slag, vitrified carbon, etc. that leave a minimum anchor profile of 75 µm (3 mils). Preparation with hand tools such as emery/grinder, sandpaper and files is acceptable but the degree of adhesion will be lower.
3. Abrasive blasting level must be equivalent to SSPC-SP10 (NACE 2, SA 2.5.) "Near White Metal"
4. Apply the product to the prepared surface before rust forms. If there is a possibility of rust formation prior to product application, contact your EMSOL representative for recommendation of a primer and/or rust inhibitor.

NON-Metallic Surfaces (concrete, fiberglass, etc.):

"ONLY APPLY OVER CLEAN, DRY, SOLID/FIRM AND ROUGHENED SURFACES"

Inspect the surface and make sure it is firm. If the surface is painted, it is recommended to remove the paint until reaching the original substrate. If applied to a painted surface, the adhesion of the product will be limited to the adhesion of the existing paint, so it is critical that it is in good condition and well adhered to the substrate. Existing paints must have an adhesion level > 21 kg/cm² (300 psi) per ASTM D-4541 test.

Clean the surface with a degreaser or detergent until all dirt/contamination is removed. Use a fast-evaporating solvent/degreaser that leaves no residue. Acceptable degreasers: Xylene (dimethylbenzene), MEC (methyl-ethyl-ketone), Acetone (propanone), Toluene, Isopropyl Alcohol >91%. Decontaminate the surface with a brush and/or lint-free cloth (DO NOT USE TOWN) soaked in degreaser/solvent.

Concrete surfaces can be prepared with pressure water washing (pressure washer) in conjunction with emulsifying detergents.

Glossy, smooth or painted surfaces should be sanded to a minimum surface roughness comparable to #100 grit sandpaper.

Protect the prepared surface to prevent recontamination or soiling.

PRODUCT MIXING

Empty the contents of component "B" into the container of component "A" and mix until a completely homogeneous color mixture is achieved using the supplied mixing spatula or a "Jiffy" type mixer and drill at low revolutions (300-500 rpm). Avoid incorporating air into the mixture. If the product is cold (< 15°C) it is recommended that it be preheated to a maximum of 30°C to facilitate mixing. Scrape the bottom and sides of the container to ensure complete mixing.

To avoid a reduction in the pot life of the mixture, DO NOT let the product sit in the mixing container, spread it over the application surface or transfer it to a paint tray to prevent it from overheating and your working time will be reduced. .

PARTIAL MIXING

By Volume: 3 parts "A" to 1 part "B"

By Weight: 5.1 parts "A" to 1 part "B"

APPLICATION

Apply the product by hand using brushes and/or spatulas. Initially, vigorously rub a small amount of the mixed product making sure to achieve 100% contact with the prepared surface. Completely fill in roughness and any imperfections in the substrate. Apply the rest of the product until the required thickness is achieved, avoiding trapping air bubbles.

If necessary EMSOL MRP-1350 can be applied in multiple coats. Maximum time between coats is 24 hours @ 21°C or 12 hours @ 31°C). If the overcoat time has been exceeded, lightly sand the surface to a uniform color, wipe with a solvent-soaked rag, allow to dry, and apply additional product.

SPRAY APPLICATION

EMSOL MRP-1350 can be sprayed with airless equipment with the following characteristics:

- Pump size: ≥ 56:1
- Recommended pressure: ≥ 5600 psi (386 bar)
- Internal diameter of hoses: 0.5" (1.27cm) ideal, 3/8" (0.95cm) acceptable
- Maximum hose length: 50 feet (16 m)
- Thinning/diluting the product is not recommended. Consult your EMSOL representative for more information.

CLEANING

Clean tools immediately with an appropriate solvent or isopropyl alcohol before product hardens.

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