mCoat™ IM HT
Product Technical Data

MCOR™ 1230

MCOR™ 1230 (mCoat™ IM HT) is an ultra-high performance silicone-epoxy hybrid coating system which combines the advantages of both technologies. Formulated with bifunctional curing agents, the dual nature of its reactivity allows the system to bind chemically to both inorganic materials and organic polymers thus creating ultra-high crosslink density, specifically engineered to resist up to 230 °C (446 °F) immersive or pressurized high temperatures, and protect against aggressive, concentrate chemicals. In addition, MCOR™ incorporates titanium and phyllosilicates (sheet-like arrangement of atoms) to enhance temperature tolerances, abrasion resistance, chemical resistance, and hold long-term high gloss retention even under intense U.V. environments.

mCoat™ IM HT is a truly unique, new generation coating for immersion grade high temperature applications. With its ultrahigh crosslink density and plated matrix, these bound sheet arrangements provide reinforcement to the material with features that are chemically inert, dielectric/insulating, flexible, reflective, refractive, and resilient.

The mCoat™ IM HT is an ultra-high solids coating, simple to use, forgiving, and cures to a hardened finish for barrier protection in industrial high temperature, wear and chemical areas. Often sought for internal component coatings of high velocity fluid flow areas, steam areas, or for corrosive storage and transport systems; the coating also is utilized for troughs, vessels, and other structures where harsh attack from heat, abrasion and corrosion often occur. Formulated with rust/corrosion inhibitors and incredible U.V. resistance, the system is also popular for exterior surface protection.

Features

- Immersion-grade
- High heat tolerance
- High abrasion resistance
- High level chemical protection
- Thermal cycle performance
- Simple to apply
- Ultra-high solids (low VOCs)
- Surface tolerance
- Incredible U.V. resistance
- Long term gloss retention
- Built-in rust/corrosion inhibitors

Applications Include

- Heated fluid systems and pumps
- Heat exchangers and regenerators
- Separators/centrifuges/knock-out drums
- Scrubbers and absorbers
- Heaters, boilers and return tanks
- Steam and condensation systems
- Economizers and preheaters
- Distillation units
- Isolation spools

Film Thickness & Theoretical Coverage

mCoat™ IM HT is designed to be applied as a two-coat system. Applied at 200 microns (8 mils) minimum to 350 microns (14 mils) maximum, per coat.

mCoat™ IM HT is a near 100% solid coating that will not shrink. 3.74 m2/kg. at 250 µ DFT (40 ft2/kg. at 10 mils DFT). Actual coverage will depend on surface conditions, irregularities, and surface profile.

Important: Do not exceed 350 microns (14 mils) per coat. If applying multiple coats, recoat window schedules must be observed.

Surface Preparation

The success of any coating application is directly proportional to the completeness of the substrate preparation and the care the application crew puts into the application. Surface must be clean and sound. Verify that the temperature of the surface is at least 3 degrees C (5 degrees F) higher than the dew point temperature to preclude condensation.

Metal: Before preparing steel, please inspect and remove oil, grease, or other contaminants - "Solvent Cleaning" (SSPC-SP1) may be required. Grind any weld spatter or steel weld inconsistencies. Abrasive blasting (or other approved mechanical methods) to SSPC SP-6/NACE No. 3 "Commercial Blast Cleaning" must be used in order to achieve a clean surface with a minimum profile of 75 microns (3 mils); remove dust and debris by high compressive air or solvent cleaning (SSPC-SP1) may be require again.

Concrete: Remove all oil, dirt, and contaminates and prepare the concrete by abrasive blasting, high pressure water blasting, jetting and/or approved mechanical methods to SSPC SP-13/NACE No. 6 "Surface Preparation of Concrete." Surface should be dry and free of dust.

Application Method

Material is supplied in two (2) containers (base+cure) as a unit. If possible, always mix a complete unit in the proportions supplied; if not, use a calibrated scale to weigh out each component or use measuring cups to measure by volume, if volume ratio is provided. Adding more or less hardener will adversely affect the cured physical properties.

Measure the material temperature prior to mixing. If the material is cooler than 21 °C (70 °F), raise its temperature slowly to above 24 °C (75 °F). For published working time to remain manageable, do not exceed 32 °C (90 °F). After the components have been measured, combine entire contents of cure with base and mix thoroughly with a power agitator or mixing stick. Mix for five (5) minutes until the mixture becomes uniform in color and viscosity with no visible streaks or lumps and be aware of pot life (higher temperature and mass accelerates pot life).

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<<cont> When possible, MCOR™ recommends mCoat™ IM HT as a two-coat system. Apply the mixture immediately (advanced curing agents are utilized to create strong crosslinking; hence, shortens pot life) with brush, roller, or spray.

Note: mCoat™ IM HT does not require a stage 2 cure, and prefers not be cured under heat. Do not apply on surfaces over 60°C (140 °F).

Important: Do not apply secondary coats prior to recoat window, as entrapping curing catalysts will adversely affect the ultimately curing process and performance.

Equipment

Brush: wide brush with short hair bristle.
Roller: mohair or foam roller.
Spray: MCOR™ recommends at minimal 30:1 ratio pump. Spray tip with .019" to .021" orifice.

Note: Only use high quality Purdy® Golden Eagle™ brands or similar. Purge with MCOR™ #5 Cut & Clean.

Volume Capacity & Color

A unit is a two-component (base+cure)

The volume capacity of a 1 kg of mixed mCoat™ IM HT is 936 cm^3 (57 cu.in.).

mCoat™ IM HT is available in:

- Dark Grey (DGY)

Storage & Handling

Shelf life: 18 months, sealed.

Store in a dry area away from direct sunlight. The material should be conditioned to between 24 °C (75 °F) and 35 °C (95 °F) before use.

Clean tools with MCOR™ #5 Cut & Clean.

Thinning

MCOR™ does not recommend thinning.

Safety

Consult Material Safety Data Sheet (SDS) for all material safety information.

Technical Properties

Type:		Silicone/epoxy hybrid
Finish:		Gloss
Mixing ratio		6.5 : 1 (by weight)
Solids by volume:	ASTM D2697	97-99%
Solvents (VOC) by volume:		1-3%
Mixed viscosity:	ASTM D2196	13,500 cps
Bond strength (steel):	ASTM D4541	100 Bar (1450 psi)
Pot life:		50 min. (25 °C / 200 g mass)
Water absorption:	ASTM D1653	< 0.001 g/sq.m.
Tensile strength:	ASTM D638	61 MPa
Flexural strength:	ASTM D790	94 MPa
Compressive strength:	ASTM D695	83 MPa
Tensile elongation:	ASTM D2370	15%
Flash point (mixed):	ASTM D3278	80-90°C (176-194°F)
Complete cure:		48 hours (25 °C)
Recoat Time		8 hrs. @ 25 °C- minimum
		No maximum
Temperature exposure: *(continuous or dry)*		205 °C (401 °F)
Temperature exposure: *(intermittent)*		230 °C (446 °F)
Temperature exposure: *(max. for wet, vapor or fluid pressure)*		235 °C (456 °F)

Chemical Resistance

mCoat™ IM HT will resist a broad range of chemicals; including most solvents, hydrocarbons, and concentrate acids and caustics.

Limitations

Apply in good weather when air and surface temperatures are above 13 °C (55°F). If the material is cooler than 21 °C (70 °F), raise its temperature slowly to above 24 °C (75 °F). For published working time to remain manageable, do not exceed 32 °C (90 °F).

mCoat™ IM HT does not require a stage 2 cure, and prefers not be cured under heat. Do not apply on surfaces over 60°C (140°F).

Do not apply secondary coats prior to recoat window, as entrapping curing catalysts will adversely affect the ultimately curing process and performance. Do not applying more than 350 microns (14 mils) WFT per coat.

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