mCrete™ R Compound
Product Technical Data

MCOR™ 5105

MCOR™ 5105 (mCrete™ R Compound) is a two-component moisture insensitive, highly adhesive, chemical resistant, 100% solids, high strength epoxy paste with superior adhesion. Incorporating toughened silica for industrial durability with fiber-reinforcement blending in its matrix to create a fiber-reinforced-polymer (FRP) compound. This structural-grade polymer can enhance any substrate for repair and protection. mCrete™ R Compound is truly versatile and can be used as an adhesive, patching filler, or even as a high-build (1/2" vertical/overhead), stand-alone protective liner. It bonds both vertically and overhead. Contains no solvents (no VOCs). mCrete™ R Compound bonds to concrete, steel, stone, wood, brick, and most construction materials. mCoat™ R Compound is certified to NSF/ANSI Standard 61 for contact with potable drinking water.

CLASSIFIED UL Drinking Water System Component ANSI/NSF 61 <MH61088> WATER QUALITY

Applications Include

The mCrete™ R Compound has been proven in many aggressive, enclosed, immersive, and partially opened environments. mCrete™ R Compound performs in areas subject to chemical attack, and as a sealer preventing oxidation while holding back water migration and hydrostatic pressure. Ideally suited as a protective coating/lining solution, repair or filling epoxy as:

- Adhesive, segmental and anchoring epoxy
- Reinforcement compound
- Structural patching and filler
- Concrete repair with sectional or total protection
- Protective, structural-grade coating and liner
- Ultra-high moisture, wet solution
- Ideal for various substrates including masonry, metal, wood, and some plastics

Features

- "Green" - 100% solids, no VOCs
- Toughened durability
- Indefinite recoat window
- Excellent chemical resistance
- Structural, with movement tolerance
- No sag, ultra-high build, trowel-applied
- Surface & moisture tolerant (cures underwater)
- Ultra-high adhesion, self priming
- Great for sectional lining requirements

Film Thickness / Coverage

MCOR™ 5105 (mCrete™ R Compound) is a thixotropic material intended to be applied in various controlled applications for specific needs, and may be further controlled by sanding for uniformed dressing. Intended as a cladding epoxy or filler at various thicknesses, the mCrete™ R Compound can be applied at any thickness up to 1.25 cm (1/2 inch) per pass without sagging, without mechanical support; and thicker if applied in multiple passes or with mechanical support (ie- MCOR™ Reinforcement, weld rods, metal and fabric scrim).

Approximate coverage per 1 kilogram covers 0.11 m^2 at 1 cm thickness (0.9 ft^2 at 0.5 in. thickness).

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.

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. Although primers are optional: should the substrate prove to be excessively outgassing, the MCOR™ Primecoat™ SE is recommend to reduce the occurrences of pinholing. The MCOR™ Primecoat™ SE would be advised for substrate surface conditioning and enhancement.

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 25 microns (1 mil); remove dust and debris by high compressive air or solvent cleaning (SSPC-SP1) may be require again. MCOR™ Primecoat™ MTe is advised as a primer should the substrate be susceptible to flash-rusting.

Application Method

Material is supplied in two (2) containers Part A and Part B (base+cure) as a unit. If possible, always mix a complete unit in the proportions supplied. Use a calibrated scale to weigh out each component, do not measure by volume. 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 16C (60F), raise its temperature slowly. For published working time to remain manageable, do not exceed 32C (90F).

Mix thoroughly with a low speed power drill mixer (3-5 minutes), make sure to mix around walls and base of container. Incomplete mixing will result in loss of physical properties and unmixed/malcured patches.

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Apply the mixture immediately with a trowel/spatula/putty-knife. Cover large holes or cracks with mechanical support or reinforcement (ie- MCOR™ Reinforcement, weld rods, metal and fabric scrim) and apply mCrete™ R Compound over the patch and onto an adjacent solid area.

Volume Capacity & Color

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

The volume capacity of 1 kg. of mixed MCOR™ 5105 is 1081 cm^3 (66 in^3).

MCOR™ 5105 is available in:

- Light Grey (LGY)

Storage & Handling

Shelf life: 24 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.

Thinning

Thin with MCOR™ #1 Reduction not to exceed 2% by volume.

Safety

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

Technical Properties

Type:		Thixotropic FRP Epoxy
Finish:		coarse – alabaster (depending on application)
Mixing ratio (by weight)		5:1
Adhesion strength (concrete)	ASTM D4541	substrate failure
Adhesion strength (steel):	ASTM D4541	103 Bar (1500 psi)
Solids by volume:	ASTM D2697	100%
Solvents (VOC) by volume:		0%
Water Absorption	ASTM D1653	< 0.1 g/sq.m.
Impact Strength:		2.4 m- 0.45 kilo (7.9 ft-lb)
Tensile strength:	ASTM D 638	61 MPa (8,900 psi)
Flexural modulus:	ASTM D 790	4,964 MPa (720,000 psi)
Compressive strength:	ASTM D 695	110 MPa (16,000 psi)
Elongation	ASTM D2370	6%
Gel Time		6 hours @ 25C (77F)
Complete Cure		18 hours @ 25C (77F)
Temperature exposure (dry):		-26 °C – 76 °C (-15 °F – 170 °F)
Temperature exposure (wet-max):		71 °C (160 °F)
Pot life:		30 min. @ 20 oC @ 200g mass
Recoat time:		when firm – no max

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