mClad™ mFill™
Product Technical Data

MCOR™ 3115

MCOR™ 3115 (mClad™ mFill™) is a two-component, high strength, extremely forgiving/tolerant, vertical and overhead, non-sag, epoxy paste, packaged in a convenient 1:1 mix ratio to use a general industrial grade repair, reclaiming, resurfacing, patch filler for metal. The mClad™ mFill™ provides point-of-use application to save time and material. Highly tolerant for challenging areas, including wet. The material has a wide variety of applications, and is often sought for steel, and other metal repairs, filling, patching, and as a bonding adhesive. Epoxy-based, and highly modified with fibers and ceramics, the material is a durable, sealed protective solution to combat corrosion.

Applications Include

The mClad™ mFill™ is versatile, often utilized as cladding epoxy, metal reclaimer, and/or mechanical filler.

- Oversized mating and gaps
- Metallic faces and filling
- Fractured pipes and components
- Pitted metal reclaiming
- Anchoring and adhesive
- Fractured, holed, leaking trays, tanks, hulls or vessels
- Other metal filling, repair, and reclamation needs

Features

- Ease-of-application
- 100% solid
- Ceramic filled, fiber reinforced
- For all metals
- Able to feather and taper
- Convenient 1:1 ratio by volume
- Surface tolerant
- High build, non-sag
- Sealed corrosion resistance

Volume Capacity / Theoretical Coverage

The volume capacity of 1 kg. of mixed MCOR™ 3115 is 1,000 cm^3 (61 in^3). Approximate coverage per 1 kilogram covers 1,000 cm^2 at 1 cm. thickness (1 kg covers 122 in^2 at 0.5 in. thickness).

Film Thickness

MCOR™ 3115 (mClad™ mFill™) 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 mClad™ mFill™ 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 (reinforcement mesh, weld rods, metal and fabric scrim).

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. MCOR™ Primecoat™ MTe is advised as a primer should the substrate be susceptible to flash-rusting, to stripe coat any edges or bends in the metal for enhancing peak retention, or should the metal not possess the characteristics to achieve optimal profiling capability.

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. Use a calibrated scale to weigh out each component or use measuring cups to 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 16 °C (60 °F), raise its temperature slowly to above 22 °C (72 °F). For published working time to remain manageable, do not exceed 32 °C (90 °F).

After the components have been measured on a clean, flat mixing board, mix thoroughly with a trowel/spatula/putty-knife until the mixture becomes a uniform in color and viscosity with no visible streaks or lumps (2 - 3 minutes). Incomplete mixing will result in loss of physical properties and unmixed/malcured patches.

Apply the mixture immediately with a trowel/spatula/putty-knife.

Cover large holes or cracks with mechanical support (reinforcement mesh, weld rods, metal and fabric scrim) and apply mClad™ mFill™ over the patch and onto an adjacent solid area. Pipes can be repaired by coating a cloth "bandage" with mClad™ mFill™ or other mClad™ series product and wrapping the bandage around the pipe. An additional layer of mClad™ mFill™ should be applied over the bandage.

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Packaging & Color

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

mClad™ mFill™ is available in:

- Dark Grey

Storage & Handling

Shelf life: 5 years, sealed.

Store in a dry area away from direct sunlight.

Clean tools with MCOR™ #5 Cut & Clean.

Thinning

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

Limitations

Apply in good weather when air and surface temperatures are above 16 °C (60°F). For optimum application properties, condition the material to 22 °C (72 °F) temperature range prior to mixing and application.

Safety

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

Technical Properties

Type:		Thixotropic Epoxy
Base component (consistency):		Paste
Base component (color):		Dark grey
Solidified component (consistency):		Paste
Solidified component (color):		Light grey
Finish:		Matte
Mixing ratio (by volume)		1:1
Solids by volume:	ASTM D2697	100%
Solvents (VOC) by volume:		0%
Bond strength (steel):	ASTM D4541	103 Bar (1500 psi)
Impact Strength:		2.4 m- 0.45 kilo (7.9 ft-lb)
Tensile strength:	ASTM D 638	58.6MPa (8,500 psi)
Flexural strength:	ASTM D 790	51.7 MPa (7,500 psi)
Compressive strength:		57.3 MPa (8,320 psi)
Temperature exposure (dry):		-26 °C – 93 °C (-15 °F – 200 °F)
Temperature exposure (wet-max):		76.6 °C (170 °F)
Water absorption:		0.2%
Pot life:		25 min. @ 20 °C @ 200g mass

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