mFlex™ HD Rubberizer
Product Technical Data

MCOR™ 4282

MCOR™ 4282 (mFlex™ MD Fluid Elastomer) is a medium durometer, 100% solids, flexible fluid-grade, urethane-acrylate epoxy hybrid sealant with zero-isocyanate. Incorporating a proprietary curing system, this urethane hybrid technology offers the market a safer, durable, more tolerant elastomeric system than older generation polyurethane technologies. This new generation of urethane-acrylate epoxy hybrid sealants undergo similar development of properties to (cold) vulcanizing which will produce higher strengths; in addition, higher moisture tolerance, increased UV resistance, better surface acceptance and adhesion, more stable and longer lasting shelf life without the concern of isocyanates.

The mFlex™ HD Rubberizer is a two component high performance elastomer specifically designed for high build applications of industrial rubberized need areas. Because of its high performance properties, it provides extraordinary sealed tolerances to chemicals, wear, abrasion, and degradation while exhibiting elongation, strength and robust industrial-grade coating, lining, sealing, padding/cushioning, encapsulation and rubberizing.

Applications Include

- Rubberized coating of pump and flow components
- Rubberized coating and lining of tanks and handling equipment
- Anti-cavitation system for propellers
- Anti-vibration and shock absorbing
- High build rubberized lining/coating
- Impact cushioning and wear padding
- Flange and other component encapsulation
- Hard durometer castable rubber

Features

- Isocyanate-free, no VOCs
- "Cold" curing alternative to vulcanized rubber
- Excellent UV resistance
- Terrific adhesion
- Applied by brush, roller, or spray
- 100% solids
- 150% elongation
- Abrasion and wear tolerance
- Excellent chemical resistance
- Terrific impact and vibration tolerances

Film Thickness & Theoretical Coverage

mFlex™ HD Rubberizer is formulated to brush, roll, pour or cast in place, as an applied joint sealant. As a coating/liner, can be applied at 0.5mm (20mils) min. to 1.3mm (50mils) max./coat.

mFlex™ HD Rubberizer is a 100% solids polymer that will not shrink. 1.85 m^2/kg. at 0.5mm DFT (19.6 ft^2/kg at 20 mils DFT). Actual coverage will depend on surface conditions and irregularities.

Surface Preparation

The success of any coating application is directly proportional to the completeness of the substrate preparation. Surface must be clean, sound and properly profiled. 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, inspect and remove oil, grease, or other contaminants - "Solvent Cleaning" (SSPC-SP1) may be required with MCOR™ #5 Cut & Clean. Grind any weld spatter or inconsistencies. Abrasive blasting (or other approved mechanical methods) to SSPC-SP6/NACE 3 "Commercial Blast Cleaning" must be utilized 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™ E1 Primer is required for maximum bond strength prior to applying mFlex™ HD Rubberizer (refer to MCOR™ E1 Primer's technical data sheet for instruction on use).

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; substrate should be sound, a pH of 7 or above, and profiled to a minimum ICRI CSP 4. MCOR™ E1 Primer is required for maximum bond strength prior to applying mFlex™ HD Rubberizer (refer to MCOR™ E1 Primer's technical data sheet).

Rubber/Plastic: Will bond to a variety of different plastics and rubber surfaces (such as: nitrile, hydrogenated nitrile, neoprene (polychloroprene), ethylene-propylene, chloroprene, polyacrylate, ethylene acrylic, styrene-butadiene, EPDM, natural/volcanized rubber, polyvinyl chloride (PVC), polyester, polyamides (nylons), acrylonitrile butadiene styrene (ABS), and polyurethane with the correct surface preparation methods. Remove all oil, dirt, and contaminates. Substrate/surface must be profiled: abraded, scuffed, or scored via SSPC-SP2 "Hand Tool Cleaning" and/or via SSPC-SP3 "Power Tool Cleaning." After which, SSPC-SP1 "Solvent Cleaning" will be required prior to applying material. MCOR™ does not recommend the use of primer for rubber/plastic bonding.

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Application Method

Material is supplied (base+cure) as a unit. Apply by brush, roller or spray. Comes as a premeasured unit, if splitting the unit, use a calibrated scale to weigh out each component by weight ratio. Adding more or less hardener will adversely affect the cured physical properties.

Measure the material temperature prior to mixing. The material should be conditioned to between 21 °C (70 °F) and 35 °C (95 °F) before use. Mix thoroughly until the mixture becomes a uniform in color and viscosity with no visible streaks or lumps (4 - 5 minutes). Incomplete mixing will result in loss of physical properties and unmixed/malcured patches. Apply the mixture immediately. Cover large holes or cracks with mechanical support, weld rods, metal and fabric scrim) and apply mFlex™ HD Rubberizer over the patch and onto an adjacent solid area.

Equipment

Brush: short hair bristle. Roller: mohair, nap or foam roller (only use high quality shed-resistant rollers) Spray: MCOR ™ recommends at minimal the use of a .016" orifice spray tip or greater, 45:1 spray pump or greater, 3/8" hoses, with 1/4" whip. Purge with MCOR™ #5 Cut & Clean.

Technical Properties

Type:		Isocyanate-free urethane-acrylate epoxy hybrid polymer
Mixed density:		9.0 – 9.5 lbs/gal.
Mixed viscosity:	CPS @ 25°C	400,000
Mixing ratio (by weight):		3(A) : 1(B)
Solids by volume:	ASTM D2697	100%
Solvents (VOC) by volume:		0%
Hardness:	ASTM D2240	82 Shore A
Ultimate elongation:	ASTM D412	150%
Tensile strength:	ASTM D412	7.7 MPa (1120 psi)
Bond strength (steel):	ASTM D4541	7.9 MPa (1150 psi)
Tear strength (Die C)	ASTM D624	330 lbf/in
Tear strength (Split)	ASTM D4541	140 lbf/in
Crack bridging 1000 cycles:	ASTM C957	passes
Elongation recovery:	ASTM C957	passes
Temperature performance:		- 40°C to +110°C (- 40°F to +230°F)
Pot life:		35 min. @ 20 °C @ 200g mass
Cure times:		35 minute (Gel) 24 hours (Initial set) 72 hours (Max properties)

Interpretative Data:

Adhesion: Excellent adhesion to different substrates, including steel, aluminum, masonry/concrete, and various polymeric surfaces. Also, bonds well to a variety of different plastics and rubber (such as: nitrile, hydrogenated nitrile, neoprene (polychloroprene), ethylene-propylene, chloroprene, polyacrylate, ethylene acrylic, styrene-butadiene, EPDM, natural/volcanized rubber, polyvinyl chloride (PVC), polyester, polyamides (nylons), acrylonitrile butadiene styrene (ABS), polyurethane.

Thermal resistance: Retains its elasticity at temperatures ranging from - 40°C to +110°C (- 40°F to +230°F), enabling it to withstand various climactic conditions.

Abrasion resistance: Exceptionally resistant to abrasion and wear.

Chemical resistance: Highly resistant to de-icing salt solutions, dilute, non-oxidizing acids, caustic solutions, aliphatic hydrocarbons, and mineral oils. For specific ratings, contact MCOR™ for updated rating charts or reports.

Weathering resistance: Good resistance to all types of weathering, ozone, UV radiation, and high energy radiation.

Sealing cracks: Seals cracks and at the same time prevents moisture penetration and attack by aggressive substances.

Water vapor and gas permeability: Waterproof, it has a high level of impermeability to water vapor.

Resistance to hydrolysis and microbial attack: Effectively helps to protect surfaces against hydrolysis and offers excellent resistance to microorganisms and microbiological induced corrosion.

Water resistance: Forms a homogeneous, seamless, and watertight seal with no weak points.

Tear propagation resistance: Surfaces coated have excellent resistance to tear propagation and mechanical stress.

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

mFlex™ HD Rubberizer is available in:
- Blue (B)

Volume Capacity
A unit is two-component (base+cure).

The volume capacity of a 1 kg of mixed mFlex™ HD Rubberizer is 926 cm^3.

Storage & Handling / Limitations
Shelf life: 12 months, sealed. Store in a dry area away from direct sunlight. The material should be conditioned to between 21 °C (70 °F) and 35 °C (95 °F) before use.

Thinning
Optional: May be thinned or reduced with MCOR™ #1 Reduction; not to exceed 3% by weight.

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

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