mFlex™ Rapid Rbbr™
Product Technical Data

MCOR™ 4911

MCOR™ 4911 (mFlex™ Rapid Rbbr™) is a high durometer, 100% solids, applied urethane-acrylate epoxy hybrid flexible polymer for quick return-to-service/emergency "cold" applied rubberizing. This new generation of urethane-acrylate epoxy hybrid repair 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™ Rapid Rbbr™ is a two component high performance elastomer specifically designed for fast repair, rebuilding, and coating applications of industrial flexible need areas. Because of its curing system and high performance properties, MCOR™ 4911 provides flexible solutions for emergencies requiring rapid development of properties with extraordinary sealed tolerances to chemicals, wear, abrasion, and degradation while exhibiting strength and robust industrial-grade performance.

Applications Include

- Rapid curing, rubberized repair, rebuilding and coating
- Emergency repairs of rubber and other flexible components
- Conveyor belts
- Quick repairs on cracks and scores of tire sidewalls on heavy duty trucks
- Fast repair of worn gasket seals and rubber rollers
- Cold curing alternative to vulcanized rubber repairs
- Hard durometer castable rubber

Features

- Isocyanate-free, no VOCs
- Rapid curing, quick return-to-service
- "Cold" fast curing alternative to vulcanized rubber
- Excellent UV resistance
- Terrific adhesion
- Unique ability to level and hang (both horizontal leveling and vertical/overhead grade)
- 100% solids
- 150% elongation
- Abrasion and wear tolerance
- Excellent chemical resistance
- Terrific impact and vibration tolerances

Film Thickness & Theoretical Coverage

mFlex™ Rapid Rbbr™ as a pour or cast in place repair sealant, material can fill spaces/cracks as thin as 800 microns (1/32"). As a repair coating or patch, can be applied at 0.25mm (10mils) min. to 1.25cm (1/2 inch) max./coat.

mFlex™ Rapid Rbbr™ is a 100% solids polymer that will not shrink. 0.93 m^2/kg. at 1mm DFT (39.3 ft^2/kg at 10 mils DFT). Actual coverage will depend on surface conditions and irregularities.

Linear coverage of joints/cracks (linear feet) / Kg.

Joint/Crack – Width (Inches)

Joint/Crack – Depth (Inches)	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
1/8	301.2	150.6	100.4	75.3	60.2	50.2	43.0	37.7
1/4	150.6	75.3	50.2	37.7	30.1	25.1	21.5	18.8
3/8	100.4	50.2	33.5	25.1	20.1	16.7	14.3	12.6
1/2	75.3	37.7	25.1	18.8	15.1	12.6	10.8	9.4
5/8	60.2	30.1	20.1	15.1	12.0	10.0	8.6	7.5
3/4	50.2	25.1	16.7	12.6	10.0	8.4	7.2	6.3
7/8	43.0	21.5	14.3	10.8	8.6	7.2	6.1	5.4
1	37.7	18.8	12.6	9.4	7.5	6.3	5.4	4.7

Linear coverage of joints/cracks (linear meters) / Kg.

Joint/Crack – Width (mm)

Joint/Crack – Depth (mm)	3	4	6	8	10	15	20	25
4	77.1	57.8	38.6	28.9	23.1	15.4	11.6	9.3
5	61.7	46.3	30.8	23.1	18.5	12.3	9.3	7.4
7	44.1	33.1	22.0	16.5	13.2	8.8	6.6	5.3
9	34.3	25.7	17.1	12.9	10.3	6.9	5.1	4.1
10	30.8	23.1	15.4	11.6	9.3	6.2	4.6	3.7
15	20.6	15.4	10.3	7.7	6.2	4.1	3.1	2.5
20	15.4	11.6	7.7	5.8	4.6	3.1	2.3	1.9
25	12.3	9.3	6.2	4.6	3.7	2.5	1.9	1.5

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™ Rapid Rbbr™ (refer to MCOR™ E1 Primer's technical data sheet for instruction on use). <cont>>

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<<cont>> 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™ Rapid Rbbr™ (refer to MCOR™ E1 Primer's technical data sheet).

Rubber/Plastic: MCOR™ 4911 is designed primarily for repairs to rubber and plastics; and therefore formulated to accept 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), 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.

Technical Properties

Type:		Isocyanate-free urethane-acrylate epoxy hybrid polymer
Mixed density:		9.0 – 9.5 lbs/gal.
Mixed viscosity:	CPS @ 25°C	390,000
Mixing ratio (by weight):		3(A) : 1(B)
Solids by volume:	ASTM D2697	100%
Solvents (VOC) by volume:		0%
Hardness:	ASTM D2240	75 - 80 Shore A
Ultimate elongation:	ASTM D412	150%
Tensile strength:	ASTM D412	7.9 MPa (1150 psi)
Bond strength (steel):	ASTM D4541	7.5 MPa (1100 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:		15 min. @ 20 °C @ 200g mass
Cure times @ 20 °C		10 minute (Gel) 2 - 4 hours (Initial set/light use) 12 hours (Max properties)

Application Method

Material is supplied (base+cure) as a unit. Apply by either by pouring, casting in place or by hand-applied methods such as putty knife, spatula, trowel, etc. If applying via sausage caulking or cartridge, ensure proper static mixing tip.

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. Note: Material is designed to gel/cure fast. Ensure you have a proper application plan prior to mixing. 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.

For horizontal surfaces: apply the mixture immediately as material will stay in a fluid form for a few minutes after mix before approaching its gel time (1 – 10 minutes @ 20 °C). *For vertical or overhead surfaces:* wait for material to approach its gel time (10 minutes @ 20 °C); as material approaches its gel time and beyond, material will increase in viscosity (thicken) and continue to thicken (the longer past its gel time, the thicker the material becomes). Note/careful: attempt to apply prior to irreversible curing stages too far beyond the gel time curing stage.

NOTE: Achieving maximum properties early can be accomplished with the use of a heat gun or heat source, heated air, increasing the material temperature will rapidly cure material for optimum and rapid development of properties. Do not exceed 110 °C (230°F). If material surface lays sloppy, smoothing down the surface can be achieved with the use of MCOR™ #1 Reduction, rubbing down any trowel marks, or surface imperfections. Cover large holes or cracks with mechanical support, weld rods, metal and fabric scrim) and apply mFlex™ Rapid Rbbr™ over the patch and onto an adjacent solid area.

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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.

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.

Packaging & Color

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

mFlex™ Rapid Rbbr™ is available in:

- Black (BLK)

Volume Capacity

A unit is two-component (base+cure).
The volume capacity of a 1 kg of mixed mFlex™ Rapid Rbbr™ is 927 cm^3.

Storage & Handling

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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