

mFlex™ MD Vertical Elastomer

Product Technical Data



MCOR™ 4170 (mFlex™ MD Vertical Elastomer) is a medium durometer, 100% solids, flexible paste-grade urethane-acrylate epoxy hybrid sealant with zero-isocyanate. Integrating 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, surface acceptance, adhesion, more stable and longer shelf life without concern of isocyanates.

The mFlex™ MD Vertical Elastomer is a two component high performance elastomer specifically designed for high build, paste-grade sealing of industrial movement areas- joints, rubbers, plastics, mating faces, and expansion/contraction areas. Because of its high build hanging characteristics, it provides a terrific vertical/overhead grade elastomer. Its formulation provides extraordinary tolerances to chemicals, wear, abrasion, and degradation while exhibiting elongation, strength and robust industrial-grade sealing.

Applications Include

- Machinery and equipment seals
- Vertical/overhead expansion joints
- Ring and pipe seals and joints
- Flexible adhesive and rubber repair
- Anti-vibration and shock mitigation
- High build rubberized liner/coating
- Impact cushioning

Features

- Isocyanate-free, no VOCs
- Vertical and overhead
- Excellent UV resistance
- Terrific adhesion
- 100% solids
- 200% elongation
- Abrasion and wear tolerance
- Excellent chemical resistance
- Terrific impact and vibration tolerances

Film Thickness & Theoretical Coverage

mFlex™ MD Vertical Elastomer is designed to be applied as a paste-grade compound; can be applied at 2.5mm (100 mils) min. to 50mm (2") max.

mFlex™ MD Vertical Elastomer is a 100% solids polymer that will not shrink. 0.19 m²/kg. at 5mm DFT (0.8 ft²/kg at 500 mils DFT). Actual coverage will depend on surface conditions and irregularities.

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

		Joint/Crack – Width (Inches)							
		1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
Joint/Crack – Depth (Inches)	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)							
		3	4	6	8	10	15	20	25
Joint/Crack – Depth (mm)	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 and the care the application crew puts into the application. 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 required again. MCOR™ E1 Primer is required for maximum bond strength prior to applying mFlex™ MD Vertical Elastomer (refer to MCOR™ E1 Primer's technical data sheet for instruction on use).

Concrete: Remove all oil, dirt, and contaminants 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™ MD Vertical Elastomer (refer to MCOR™ E1 Primer's technical data sheet for instruction on use).



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Important! Although the technical details and recommendations contained in this data sheet correspond to the best of our knowledge and experience, all the above information must, in every case be taken as merely indicative and subject to confirmation after long-term practical applications; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product. The sole liability of MCOR and Epoxytex International, Inc. for any claims out of the manufacturer's use of sale of its products shall be for the buyer's purchase price.



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Application Method

Material is supplied (base+cure) as a unit. Apply by hand-applied methods such as putty knife, spatula, trowel, etc. If applying via sausage caulking or cartridge, ensure proper static mixing tip for maximum flow and proper mix.

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/mal cured patches.

Apply the mixture immediately with a trowel/spatula/putty-knife. Cover large holes or cracks with mechanical support, weld rods, metal and fabric scrim) and apply mFlex™ MD Vertical Elastomer over the patch and onto an adjacent solid area.

Technical Properties

Type:		Isocyanate-free urethane-acrylate epoxy hybrid polymer
Mixed density:		9.0 – 9.5 lbs/gal.
Mixed viscosity:	CPS @ 25°C	600,000
Mixing ratio (by weight):		3(A) : 1(B)
Solids by volume:	ASTM D2697	100%
Solvents (VOC) by volume:		0%
Hardness:	ASTM D2240	70 Shore A
Ultimate elongation:	ASTM D412	200%
Tensile strength:	ASTM D412	7.58 MPa (1100 psi)
Bond strength (steel):	ASTM D4541	6.89 MPa (1000 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:		25 min. @ 20 °C @ 200g mass
Cure times:		25 minute (Gel) 24 hours (Initial set) 72 hours (Max properties)

Interpretative Data:

Adhesion: Excellent adhesion to different substrates, including steel, aluminum, concrete, and various polymeric surfaces.

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™ MD Vertical Elastomer is available in:

- Grey (GRY)

Volume Capacity

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

The volume capacity of a 1 kg of mixed mFlex™ MD Vertical Elastomer is 927 cm³.

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.

