

Technical Data Sheet

MM-Elastomer

Two-component-material with rubber-like characteristics



MultiMetall
the MetalExistenceCompany®

MM-Elastomer

Product description



MM-Elastomer is a material with rubber-like characteristics. These Urethane-Elastomer-systems unite very good combinations of physical and chemical properties. The range of MM-Elastomer goes

from Shore A hardness 40 to 95. Using MM-Elastomer elastic connections can be created or components repaired which are i.e. subject to abrasion. One great advantage of MM-Elastomer is, that neither primer nor conditioner is required. MM-Elastomer has a good temperature resistance and excellent bonding properties, in particular on metallic surfaces.

MM-Elastomer is a two-component-product. Object specific conditions and the quality of the surface, to be coated with MM-Elastomer, determine the choice of application consistency which is pasty, liquid or brushable.

MM-Elastomer is available in following Shore A hardness:

- 95: standard Elastomer with high abrasion resistance, very good tear strength and good chemical resistance
- 85: production and repair of elastic parts; i.e. core boxes, sealing lips
- 65: production and repair of elastic parts; wearing protection
- 40: production of elastic parts; wearing protection

Technical data for MM-Elastomer 95

Application consistency:	pasty, liquid or brushable	
Colour after curing:	black	
Tensile strength:	19 MPa (2755 psi)	
Tear strength Diec:	470 pli	
Tear strength:	130 pli	
Impact resilience:	42 %	
Breaking elongation:	330 %	
<u>Overlap shear strength</u>		
basis material	MPa	psi
- Aluminium	19	2755
- Cold rolling steel	18	2610
- GGG 20	20	2900
- GGG 40	20	2900
- Polycarbonate	6	870
- Ceramic	17	2465
- PVC	4	580
- Neoprene	> 2 substr. break	> 290
- Plywood	> 7 substr. break	> 1015
- Fibreglass	> 6 substr. break	> 870
- Glass	6	870
- Epoxy Graphite	11	1595
Shore A hardness (DIN 53505):	95	
Linear shrinkage (ASTM D 2566):	0,001 cm/cm	
Temperature resistance		
MM-Elastomer	appr. -40 °C to +130 °C	
MM-Elastomer in water	up to +80 °C	

MM-Elastomer in oil	up to +120 °C
Density (mixed components):	1,07 g/cm ³

Technical data for MM-Elastomer 85 / 65 / 40

Application consistency:	liquid
Colour after curing:	black
Shore A hardness (DIN 53505):	
MM-Elastomer 85 + Hard. EL85:	85
MM-Elastomer 65 + Hard. EL65:	65
MM-Elastomer 40 + Hard. EL40:	40
Density (mixed components):	
MM-Elastomer 85 + Hard. EL85:	1,07 g/cm ³
MM-Elastomer 65 + Hard. EL65:	1,06 g/cm ³
MM-Elastomer 40 + Hard. EL40:	1,06 g/cm ³

Chemical resistance

Already after curing at MM-Elastomer 95 a very good resistance is existent; highest resistance is effected after curing for approx. 6 days at approx. 21°C (alternatively for approx. 4 h at approx. 21°C followed by approx. 15 h at 35 - 40°C). The resistance to chemical stress like acids, caustic solutions, solvents, salts, gases, etc. depends on the concentration, temperature and duration of the exposure. Further details can be given on request.

Surface preparation

- Mechanically rough up the surface by blasting (it is recommended for blasting to use angular grit material; surface finish approx. 75 µm; purity level approx. Sa 2½ according to Swedish standard SIS 055900 / ISO 8501-1), cutting, grinding...
- Clean by sweeping, blowing off or exhausting
- Thoroughly degrease with MM-Degreaser Z or at least with a good grease dissolver (ethyl acetate, acetone,...); don't use alcohol, benzine or paint thinner
- When applying on rubber just rough up mechanically and clean the surface
- Apply a thin layer of MM-Release agent on the surfaces, that should not bond with the MM-Elastomer and polish after a short drying period

Processing data for MM-Elastomer 95

Mixing ratio by:	Weight	Volume
MM-Elastomer 95	100	4
Hardener EL95	30	1
Tool	Measuring cup	

Temperature	Pot life	Curing
5 °C	22 min	60 h
15 °C	14 min	36 h
20 °C	11 min	30 h
25 °C	9 min	24 h
30 °C	8 min	20 h
40 °C	6 min	18 h

The processing shouldn't be carried out below + 5 °C.

Processing data for MM-Elastomer 85

Mixing ratio by:	Weight	Volume
MM-Elastomer 85	100	4
Hardener EL85	30	1
Tool	Measuring cup	

Temperature	Pot life	Curing
20 °C	14 min	5 h 30 h

The processing shouldn't be carried out below + 5 °C.

Processing data for MM-Elastomer 65

Mixing ratio by:	Weight	Volume
MM-Elastomer 65	100	6
Hardener EL65	20	1
Tool		Measuring cup

Temperature	Pot life	Curing
20 °C	12 min	30 h

The processing shouldn't be carried out below + 5 °C.

Processing data for MM-Elastomer 40

Mixing ratio by:	Weight	Volume
MM-Elastomer 40	100	5
Hardener EL40	24	1
Tool		Measuring cup

Temperature	Pot life	Curing
20 °C	10 min	30 h

The processing shouldn't be carried out below + 5 °C.

Application instruction

Before mixing the components the work piece should be prepared in accordance with the surface preparation. Always use clean tools for the removal of the components to avoid a reaction within the tins. We recommend mixing only the quantity of material which can be processed within the pot life.

The available measuring cups can be used to measure the required volume parts of the components. The big measuring cup is for the use of MM-Elastomer, the small cup is for Hardener EL. Measuring cups must be filled to marking.

Under consideration of the mixing ratio the components must be mixed very thoroughly.

Depending on the application consistency the mixture can be applied with a spatula, brush or any other suitable tool by applying, pouring or injecting.

All used tools should be cleaned straight after use.

Multiple coating

A secondary or multiple coating can be applied after the first layer has reached enough strength, whereas any contamination on the surface of the previous coating must be removed.

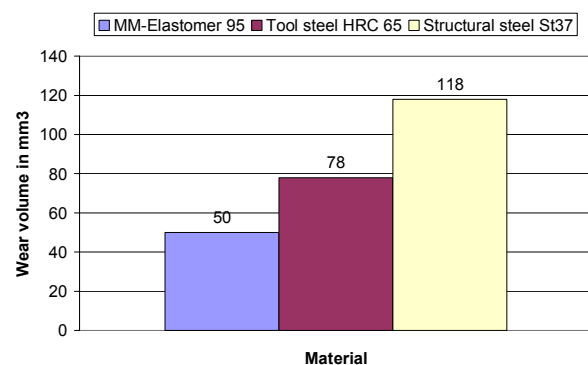
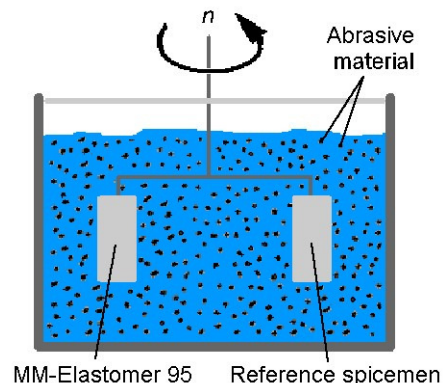
Test resistance against wear

The wear of working materials depends on a complex tribological system. In order to test the wear resistance of MM-Elastomer 95, among others the following test was carried out.

Wet wear test - Test data tribometer:

Duration of test 24 h / testing medium water with SiC in

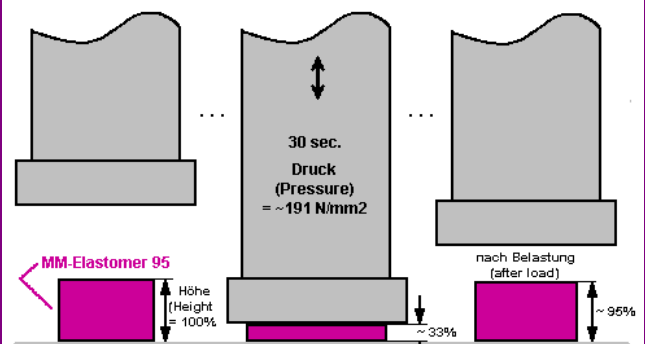
different viscosities / grain size 0,5 – 3,0 mm / temperature appr. 60 °C / turning speed n 1600 U/min



This kind of tribological stress during the tests corresponds to the particle erosion (erosion wear, abrasion) according to DIN 50320

Test compressive set

Several test pieces of cured MM-Elastomer 95 with Hardener EL95 have been pressed for 30 sec. at a pressure of approx. 191 MPa. The test pieces were compressed up to approx. 33% of their original height. After cessation of the pressure they regained approx. 95% of their original height.



This is an evidence for the extraordinary positive compressive set of MM-Elastomer 95.

Working security

Avoid eye and skin contact. In case of skin contact, wash thoroughly with soap and water. In case of eye contact, rinse thoroughly with water.

Storage

Product	Temperature commendation	Shelf life
MM-Elastomer	~ 22 °C	min. 1 year
Hardener EL	~ 22 °C	min. 1 year

The base components of MM-Elastomer 65 and MM-Elastomer 40 can possibly crystallize during longer cool storage. By warming up to approx. 60 °C the crystallization can be removed again. This has no effect on the high product quality. If the containers (especially Hardener EL) are tightly closed again immediately after usage, even after repeated openings of the containers the high quality performance is preserved.

Order information

No.	Product	Unit
951	MM-Elastomer 95, pasty	370 g
952	MM-Elastomer 95, liquid	370 g
953	MM-Elastomer 95, brushable	370 g
962	Hardener EL95, liquid	110 g
956	MM-Elastomer 85, liquid	370 g
964	Hardener EL85, liquid	110 g
958	MM-Elastomer 65, liquid	370 g
966	Hardener EL65, liquid	74 g
960	MM-Elastomer 40, liquid	370 g
968	Hardener EL40, liquid	89 g

No.	Accessories	Unit
10	MM-Degreaser Z, liquid	1000 ml
11	MM-Degreaser Z, liquid	250 ml
14	MM-Release agent, liquid	100 ml
33	Mixing plate (synthetic material)	20 x 12 cm
16	Mixing stick (stainless steel)	pc
15	Mixing cup (synthetic material)	pc

The consistency of the mixture #951 with Hardener EL95 is pasty. The MM-products #952 and #953 do have liquid consistencies, but #952 can be injected and #953 is brushable.

MM-Elastomer 85, 65 and 40 have liquid application consistencies. Therefore these materials are pourable or injectable.

Economicalness	Used quantity	Area	Volume
Elastomer 95 or 85	370 g	480 g	0,450 m ² 450 cm ³
Hard. EL95 or 85	110 g		
Elastomer 95 or 85	769 g	1000 g	0,936 m ² 936 cm ³
Hard. EL95 or 85	231 g		
Elastomer 95 or 85	822 g	1068 g	1 m ² 1000 cm ³
Hard. EL95 or 85	246 g		

The areas were achieved at a layer thickness of 1 mm.

Economicalness	Used quantity	Area	Volume
MM-Elastomer 65	370 g	0444 g	0,420 m ² 420 cm ³
Hardener EL65	74 g		
MM-Elastomer 65	833 g	1000 g	0,946 m ² 946 cm ³
Hardener EL65	167 g		
MM-Elastomer 65	881 g	1057 g	1 m ² 1000 cm ³
Hardener EL65	176 g		

The areas were achieved at a layer thickness of 1 mm.

Economicalness	Used quantity	Area	Volume
MM-Elastomer 40	370 g	459 g	0,432 m ² 432 cm ³
Hardener EL40	89 g		
MM-Elastomer 40	806 g	1000 g	0,942 m ² 942 cm ³
Hardener EL40	194 g		
MM-Elastomer 40	856 g	1062 g	1 m ² 1000 cm ³
Hardener EL40	206 g		

The areas were achieved at a layer thickness of 1 mm.

Availability

Technical data sheets are generally available in German or English language. MM-Elastomer is only produced in Germany and delivered worldwide within short time by MultiMetall. In addition to that our products are internationally available from many MultiMetall-partners. Ask for further products from MultiMetall.

Note

The product information and instructions provided in this leaflet were prepared to the best of our knowledge and serve information purposes only. We recommend that appropriate tests are carried out prior to application in order to ensure that the products and methods fulfil the purpose desired by the user. In this procedure, the given data may serve as a basis. Application and processing of the products lie outside our possible control and are therefore the sole responsibility of the user.

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