



DGE GROUP

# ANTALA Ltd.

Technical Products for Industry



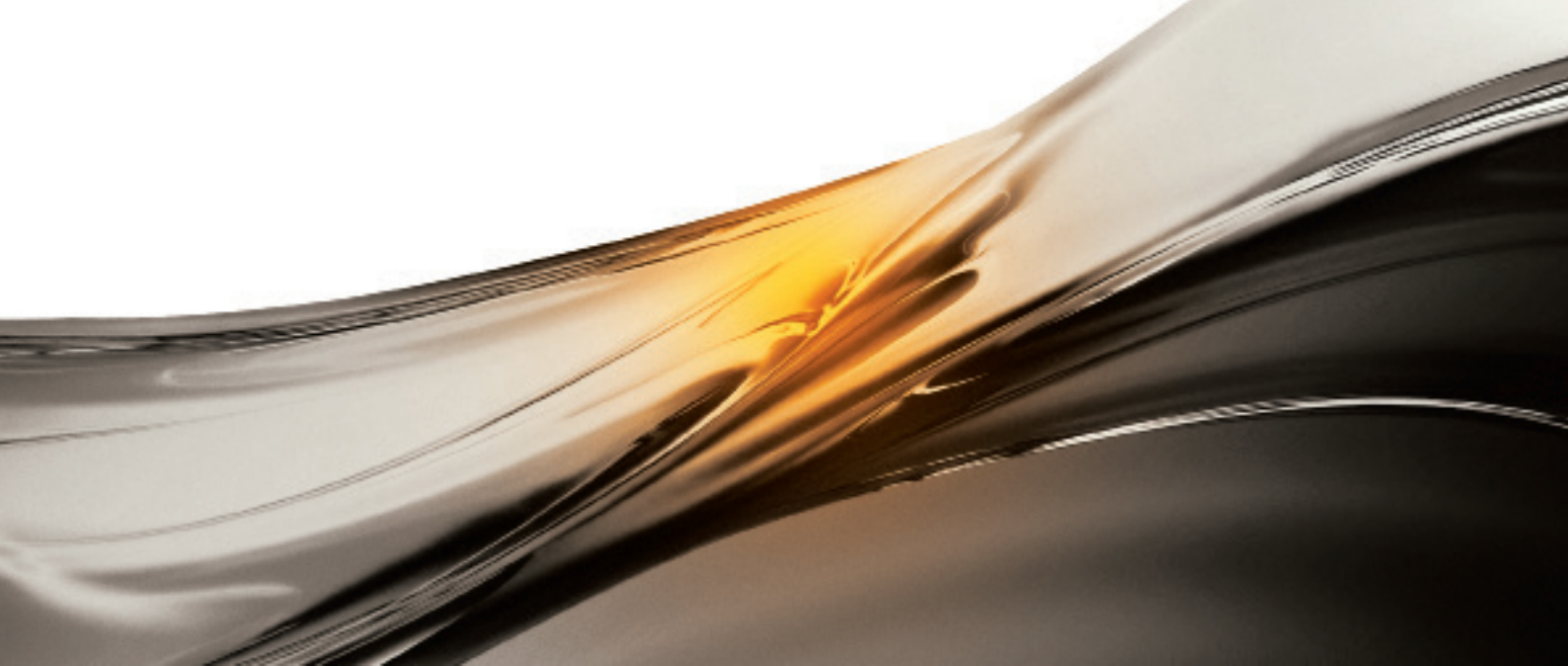
**Merbenit**<sup>®</sup>

There is Merbenit in there.  
Your energy.

Automotive / Transportation  
bonding and sealing

**merz+benteli ag**





## When it is about adhesives, merz+benteli ag is a pioneer

merz+benteli ag is the European forerunner for permanent elastic sealants and adhesives with a MS polymer base. In 1986, we brought MS products onto the market and now we offer our customers the largest MS Hybrid polymer line. But we are not satisfied with that alone: the success and the interactions we have with our customers are an incentive for us to always try new things and to develop more innovative products for current and future needs. For many decades we have applied at our Swiss production site the highest value on quality, performance and environmental sustainability.

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## Bonding instead of welding – Merbenit creates benefits

### Stability

Permanently stable due to elasticity, also at low temperatures

Vibration proof and force-absorbing

Thermally, electrically and acoustically insulating

High tear cracking and shear strength

UV and weather-resistant

### Versatility

More design variety because different materials can be bonded

Materials maintain their characteristics

Paintable and thermolacquering

Can be adjusted within the application time

Bubble-free curing

Wide adhesion range without adhesion promoter

Large, adjustable shore hardening range

Viscosity from flowable (self-levelling) to non slump and solid (also vertical)

Easily extrudable also at low temperatures

Fast and slow skin forming formula's

### Efficiency

Higher productivity through easier processes

Automatic application possible, also sprayable

Reduced material costs

Lighter end product

Less risk

### Environmental compatibility

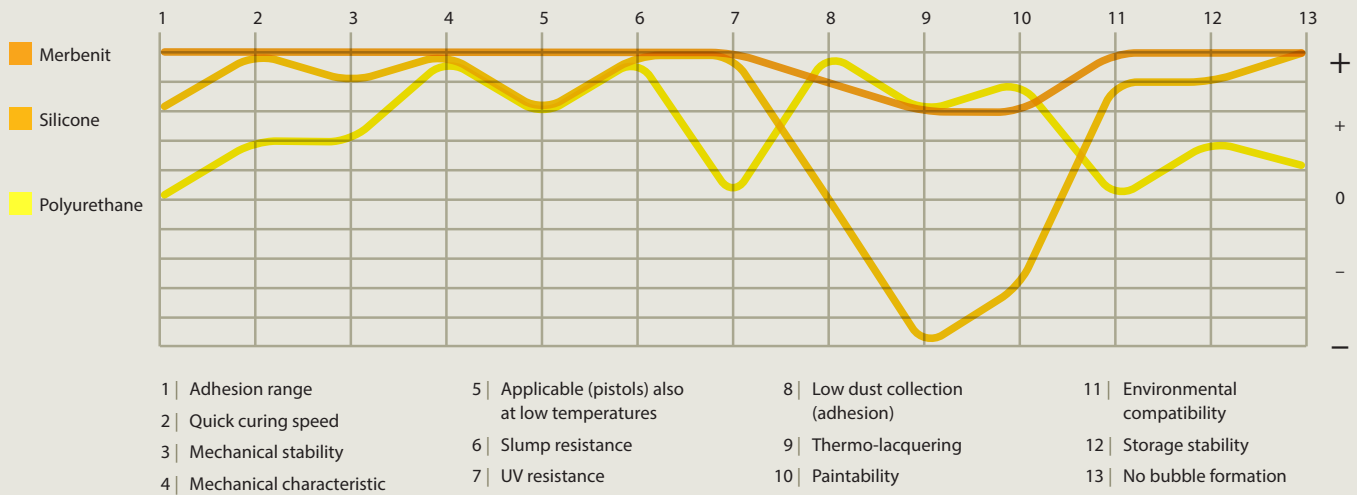
Silicone, solvent and isocyanate-free

Halogen-free formulations of merz+benteli ag

Products meet ROHS standards

Your reliable partner and specialist.

We advise you down to the smallest detail and tailor our elastic adhesive or sealing materials to your individual needs. merz+benteli ag stands for the highest quality and fair conditions.



## Automotive/Transportation bonding and sealing

In the area of automotive/transportation, the elastic adhesion and sealing technology is much more beneficial today than mechanical bonding. Through the adhesion process, different materials can be joined quickly, precisely and in an environmentally compatible manner.

The advantages of modern adhesion or sealing technology are obvious: shorter production times, reduced material and labour costs, flexibility with design. The environment is protected twice – due to the environmental compatibility production and thanks to the fact that the end product becomes lighter, the consumption of fuel is reduced.

The adhesion and sealant technology also offers the greatest flexibility in the bonding of materials and uses them gently. There are no changes in the material structure due to localised mechanical or thermal stress. In addition, the elastic bond insulates vibrations and distributes the tension evenly, which plays an important role in giving the end products a long-life cycle. The materials are better protected from corrosion and repairs become easier.

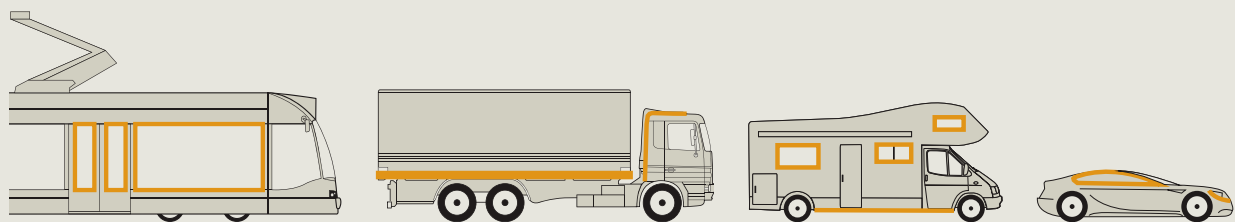
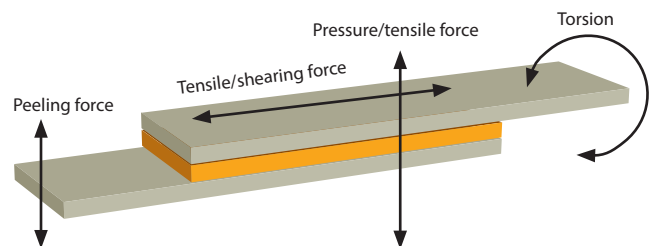
The best result is achieved if:

The maximum bonding space is used.

The bond will only be stressed in the shearing and tensile direction and will be avoided in the peeling and split direction.

The different expansion of the materials during heating is taken into account.

The adhesive surfaces are located perpendicular to the occurring forces.



Whether for cars, bus, railway or special vehicles: the automotive product range by merz+benteli ag includes products for the widest range in vehicle engineering, such as the adhesion of windscreens and interior parts, seam seals and large-scale bonding and sealing.



## 2-component products

The 2-component products by Merbenit cure particularly quickly and are therefore suitable for applications which can be quickly processed again. After several hours, very high loads are possible, also with thick layers or for materials which do not allow any air permeability such as metals, plastics, glass and painted surfaces.

### Merbenit 2K10

Merbenit 2K10 is characterised by the controlled polymer crosslinking. The quick development of force within 4 hours with an equal potting time opens up a broad sphere of applications for the Merbenit 2K10 and allows it to be used everywhere that 1-component sealants and adhesives can cause problems through slower curing.

Consistency

Tooling time at +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End stability DIN 53504 S2,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit 2K10

stable in joints up to 40 mm in width

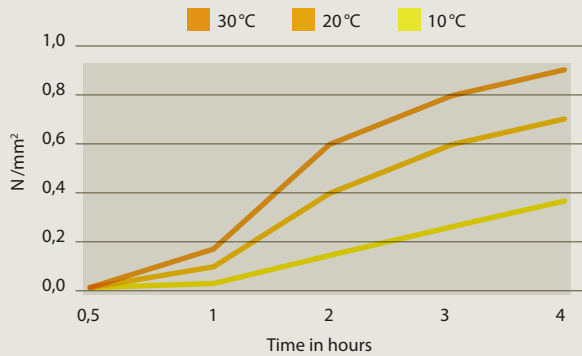
max. 40 minutes

43

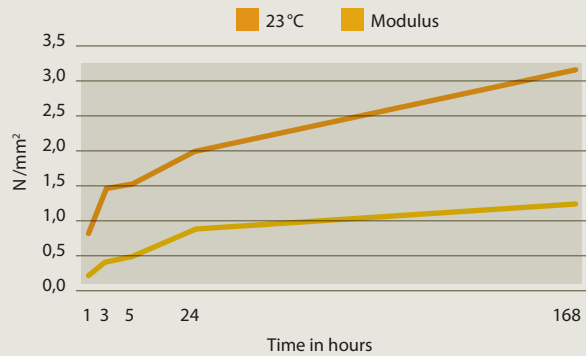
≥ 1,7 N/mm<sup>2</sup>

≥ 400 %

Shear strength 2K10



Shear strength 2K40



#### Merbenit 2K40

The new generation of the 2K-MS adhesives cures even more quickly and it achieves a tensile strength of more than 1 N/mm<sup>2</sup> after one hour. The force is created extremely quickly. When fully cured, a tensile strength of over 3 N/mm<sup>2</sup> is reached. Merbenit 2K40 adheres in many cases even without an adhesion promoter on difficult substrates such as ABS, PMMA and PC.

#### Merbenit 2K20

The self-levelling potting compound based on MS Hybrid polymer cures in four hours for a sufficient stress. The tooling time of approx. 30 minutes allows good processing and an optimal filling out of the potting compound, combined with rapid stability formation. Because Merbenit 2K20 is isocyanate-free, there is no risk of bubble formation, as this can be the case of 2K polyurethane systems.

Merbenit 2K40
slightly resistant up to approx. 3 mm
max. 10 minutes
50
≥ 3,0 N/mm <sup>2</sup> (after 1 hr > 1 N/mm <sup>2</sup> )
≥ 200 %

Merbenit 2K20
self-levelling
max. 30 minutes
30
≥ 1,0 N/mm <sup>2</sup>
≥ 300 %





## 1-component direct glazing windscreen adhesives

Merbenit SK212 direct glazing windscreen adhesive was especially developed for bonding and sealing of glass in automotive, bus, train manufacturing and cabin construction. It has a very high initial green strength and adheres well to painted and shiny metals as well as on glass and PVC. The windscreen adhesive is used wherever conventional 1K flexible adhesives have an insufficient holding force and do not ensure quick handling stability.

### Tested and certified

Merbenit SK212 is a flexible assembly adhesive with fast curing speed and very good mechanical stability values. Merbenit SK212 becomes more and more an alternative to 2K-reactive assembly adhesives. Merbenit SK212 is certified according to Euro-NCAP with a speed of 64 km/h and according to FMVSS 212 at 48 km/h. The crash test was performed one hour after windscreen bonding with a frontal collision. The quick version, Merbenit SK212 fast, achieves FMVSS 212 in just 30 minutes.

### Features

Very high initial green strength

No black staining

Easy clean

One hour drive away time,  
30 minutes with Merbenit SK212 fast

Suitable for both short and long windscreen replacement applications

Suitable for back fill applications around glass in bus and train applications

### Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

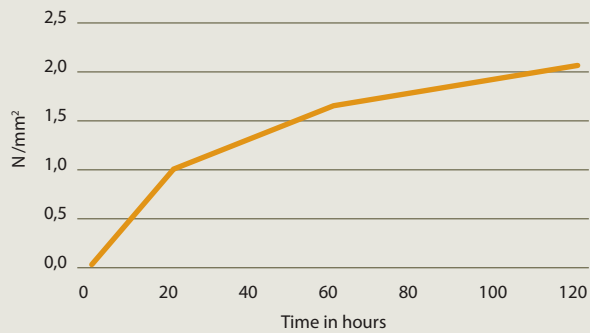
End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

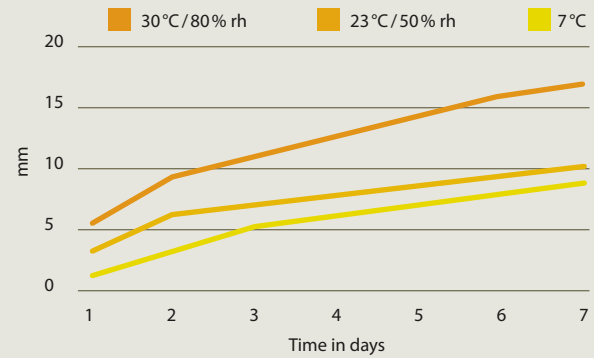
Merbenit SK212
very thixotropic
max. 15 minutes
≥ 3,5 mm
55
≥ 2,9 N/mm <sup>2</sup>
≥ 350 %



Shear strength Merbenit SK212



Curing speed Merbenit SK212



The version with longer skin forming has a longer open time. It is perfectly suitable for bonding and sealing large and heavy glass in automotive, bus, train manufacturing and cabin construction.

A highly viscous adhesive.

In addition to the long tooling time of up to 30 minutes and a high end resistance, the highly viscous windscreen adhesive is characterised by the initial adhesion on painted and shiny metals as well as on glass and PVC. Suitable for high heat and humid environments.

Adapted to the requirements

For the different requirements on quality and application, merz+benteli ag offers products which are individually made to specific needs.



## High-tack adhesives

High-tack adhesives such as Merbenit HT50 can be used immediately or absorb a certain stress within the shortest period of time. It is used when it is not possible either technically or timewise to attach the adhering material. Thus, they are used for the assembly bonding of holders, rails, elements, signs, strips or profiles. High-tack adhesives also show their benefits when bonding mirrors or cable ducts.

### Short drying time

Merbenit HT50 is a permanent elastic material based on MS Hybrid polymer with high initial adhesion, 1-component, moisture curing, high-adhesion and stable. The major advantage compared to other contact adhesives lies in the considerably shorter drying time. Unlike hot-melt adhesives, which can also establish holding forces relatively quickly, Merbenit HT50 requires no heat.

Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit HT50

very thixotropic

max. 8 minutes

≥ 3,0 mm

50

≥ 2,0 N/mm<sup>2</sup>

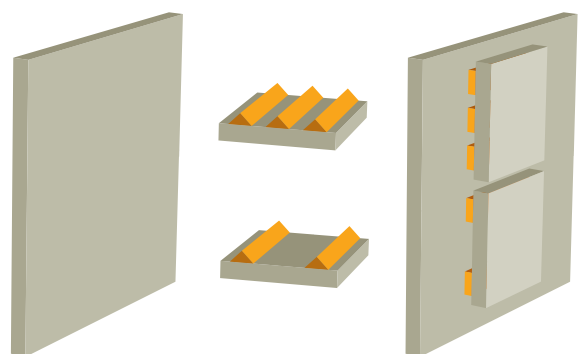
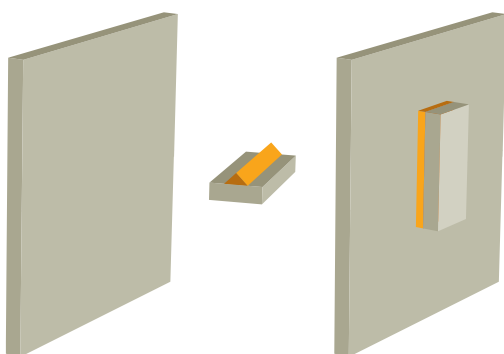
≥ 450 %

#### Extremely flexible

Merbenit high-tack adhesives and sealants can be applied directly from the applicator gun and, depending on the product, they are able to build an immediate holding force of 20 to 60 g/cm<sup>2</sup> on an adhesive film of 2 mm. The quick polymer wetting process makes it possible to establish a quick strength build, depending on the system up to 500 g/cm<sup>2</sup> within the first hour. The combination of layer thickness and elongation at break of the cured mass (> 300 %) results in an extremely flexible bond.

#### No full-area application required

For large-scale applications, the mass, depending on the required immediate adhesion, does not need to be completely applied over the full area: if you apply it in stripes and with sufficient distance, a good curing is ensured, thanks to the humidity which circulates between the adhesive strips. This means that also larger surfaces of non-absorbable materials can be bonded.



Extruding out the material from the cartridge is made very easy through the use of a V-nozzle.



## Special products – mechanically reinforced and still flexible

Merbenit SF50 is a permanent elastic adhesive and sealant based on MS Hybrid polymer and is suitable for multifunctional use in the complete automotive area. The product crosslinks very quickly in association with the quick strength development and high-end stability.

### Restoration and seals

Merbenit SF50 is frequently used in the restoration and in sealing on door folds, fender, front and rear panels, boot floors, strut mountings as well as on roof and cover bracing. Moreover, it is used for sealing perpend joints and overlaps. Merbenit SF50 is ideal to adhere component parts such as spoilers, fenders and aprons.

### Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 28 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit SF50

very thixotropic

max. 8 minutes

≥ 3,5 mm

50

≥ 3,0 N/mm<sup>2</sup>

–

≥ 350 %

Merbenit XS55 is an elastic sealant and adhesive based on MS Hybrid polymer with a particularly high tensile strength. It is perfectly suitable for bonding large components with different heat expansion.

#### Extremely solid and flexible

Material bonds with widely differing heat expansions such as CFRP (carbon fibre-reinforced plastic), acrylic glass or metals, place extremely high requirements on the elastic adhesive. Merbenit XS55 is closing the gap in this regard between highly solid mechanical adhesion and flexibility. With a tensile force of more than 5 N/mm<sup>2</sup>, it is able to carry large tensile, pressure, shearing and peel stress. The elongation at break of more than 700% has a tension-reducing effect on the component, reduces vibrations and is isolating.

Furthermore it allows bonding different materials also with thermal movement and opens up new possibilities in design and component geometry through a minimal adhesive gap. The 1-component, moisture curing and strong adhesive Merbenit XS55 is particularly suitable for use in light-weight construction, because very thin-walled materials can be bonded. Merbenit XS55 adheres to a large number of substrates without additional pre-treatment.

Merbenit XS55
very thixotropic
max. 8 minutes
≥ 3,5 mm
56
≥ 4,0 N/mm <sup>2</sup>
≥ 5,0 N/mm <sup>2</sup>
≥ 700 %



## All about adhering and sealing around glass

Merbenit UV27 is a special MS Hybrid polymer sealant for sealing glass elements. It is highly weather and UV resistant and is suitable for many types of glass frame sealings and seals in solar technology, in camper and trailer construction as well as in marine and offshore applications.

Further development for the highest demands

Merbenit UV27 is a 1-component, strong adhesion, moisture-curing, neutral polymerisation, silicone-free and odourless sealant. Thanks to a further development, Merbenit UV27 is suitable in the latest SCGTEC polytechnology for different and ambitious sealing applications.

25 years guarantee

Merbenit UV27 is UV resistant, in such a manner that merz+benteli ag provides a guarantee of 25-years. Permanent elasticity from -40°C to +90°C, adhesion on a number of materials, extreme weather resistance as well as good resistance against aliphatic solvents, oils, grease, diluted anorganic acids and alkalines are the product advantages. Merbenit UV27 can be painted and is shock-absorbing.

Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit UV27

stable in joints up to 40 mm in width

max. 15 minutes

≥ 3,0 mm

15

≥ 1,3 N/mm<sup>2</sup>

≥ 1000 %



Gomastit VG30 has proven effective for many years to seal windows and frames made of glass, plastic and metal. The sealant is characterised with its high weather and UV resistance.

#### Flexible and motion compensating

Especially designed for sealing superstructures in the roof and in panoramic windows – under an increased UV stress – the benefits of Gomastit VG30 are best expressed. The good adhesion to glass, the wide adhesion pattern, the high level of flexibility and the motion compensating characteristics make Gomastit VG30 an approved product. There is no levelling trouble with colours.

Gomastit VG30
stable in joints up to 40 mm in width
max. 30 minutes
≥ 2,5 mm
23
≥ 1,0 N/mm <sup>2</sup>
≥ 400 %



## Sealing of seams

Merbenit ST40 is a sprayable, elastic 1-component adhesive and sealant based on MS Hybrid polymer. It is perfectly suitable for large-scale bonding, sprayable seam and joint seals for substrate protection in vehicles.

### All structural types

Using a special gun, Merbenit ST40 can be applied as a bead or sprayed. All structural types according to OEM (Original Equipment Manufacturer) can be set.

### Activate crosslinking

Merbenit ST40 can be sprayed or applied with a brush and scraper. Using an accelerator, large-scale applications can be implemented. Mixing 2-3% accelerator in Merbenit ST40 results in very fast, full depth curing, including thick applications without moisture addition within the shortest period of time.

### Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit ST40

paste-form, sprayable

max. 25 minutes

≥ 2,0 mm

32

≥ 1,5 N/mm<sup>2</sup>

≥ 450 %

## Universal adhesives

The product range of universal, quick-curing and elastic 1-component adhesives based on MS Hybrid is very wide. These adhesives bring different mechanical properties. merz+benteli ag offers the right product for every application.

### The all-rounder

Merbenit HM21 is an example of a universal adhesive and is an all-round product with extremely good adhesive characteristics. It can be used to adhere the widest range of materials such as wood, metal or plastic and is used in the automotive area, in bus manufacturing and cabin construction as well as in metal, machine and electrical engineering, plastic, ventilation and air-conditioning technology.

### No distortions, no bubbles

Merbenit HM21 is virtually odorless and sets itself apart through good mechanical properties, a long application time and quick curing. The adhesive can also be applied well at low temperatures and adheres on most substrates without an adhesion promoter. In interaction with other adhesive systems, paints and coating materials, there are no curing distortions when using Merbenit HM21. In addition, the universal adhesive does not form any bubbles, is compatible for coats and can be painted over wet-on-wet. For powder coating it can temporarily be heated to 200 °C. With Merbenit HM21, sealed plates can be spot welded.

Merbenit HM21
very thixotropic, stable
max. 30 minutes
≥ 3,0 mm
43
≥ 1,6 N/mm <sup>2</sup>
≥ 500 %



## Transparent adhesive

Merbenit TS40 is a transparent, permanently elastic and low-fade 1-component adhesive and sealant based on MS Hybrid polymer. It is suitable for various lighter adhesions and seals and sets itself apart through a wide adhesion range, without adhesion promoter and through simple application.

### Protects from corrosion

Merbenit TS40 is moisture-curing, neutral, wetting and odourless as well as free of solvents, silicone and isocyanate. It can be applied to moist substrates and is coat-compatible, can also be polished and is paintable. Merbenit TS40 serves with high mechanical stability and very good sealing properties. The transparent glue and adhesive is stable, adjustable, gap and crack bridging and has a permanent elastic effect. It also protects from corrosion from -40°C to +80°C and is shock absorbing.

### Consistency

Tooling time at +23 °C, 50 % rh

Curing speed after 24 hours, +23 °C, 50 % rh

Shore A hardness, DIN 53505,  
Storage 21 days at +23 °C and 50 % rh

End resistance DIN 53504,  
Storage 7 days at +23 °C and 50 % rh

Elongation at break DIN 53504

### Merbenit TS40

thixotropic

max. 6 minutes

≥ 2,0 mm

42

≥ 2,4 N/mm<sup>2</sup>

≥ 400 %

## Silicone-free fire protection seals

With Merbenit FS30, merz+benteli ag has developed a highly flame-resistant, soft/elastic sealant and adhesive with a wide adhesion range and good coat compatibility. It is used for connection joints and various seals of cable and pipe penetrations. Moreover, Merbenit FS30 is suitable for adhesion of fire insulations and the use of isolating and light-weight plates.

Test requirements are met

Merbenit FS30 was tested by the Material Testing Institute of Materials according to DIN 4102-1. In accordance with the existing test report, Merbenit FS30 meets the requirements of construction material DIN 4102 B1.

Sprayable and highly flame-resistant

For large-scale adhesion and sealing in the fire safety area. Beside the standard Merbenit FS30 there is a sprayable and highly flame-resistant version available. The permanent elastic version with Shore 55 is perfectly suitable for adhesion and sealing applications in the industrial and automotive area.

Merbenit FS30
stable
max. 15 minutes
≥ 3,0 mm
26
≥ 1,2 N/mm <sup>2</sup>
≥ 400 %



## Merbenit Light Weight

Merbenit Light Weight is used in light-weight construction for sealing and bonding to reduce weight and is used to fill out hollow areas and fold joints, also for sealing sandwich light-weight plates. Due to its insulation properties, the adhesive is also used for vibration and heat insulation.

### Considerably lighter

With its density of 0.4–0.6 g/ml, Merbenit Light Weight is often up to 70 % lighter than conventional adhesive and sealing systems. This means a reduction of over one kilogram per m<sup>2</sup> of adhesion area. Its isolating characteristics (heat conductivity approx. 0.06 W/mK) prevent what is known as heat bridges. In addition, the adhesive is permanently elastic. Its considerably better mechanical properties such as tensile strength or elongation at break mean it is very good in comparison with butyl or PU foam. The simple cleaning during the fresh state rounds off the product.

Merbenit Light Weight
resistant
max. 10 minutes
≥ 4,0 mm
38
≥ 1,2 N/mm <sup>2</sup>
≥ 180 %



## Contact adhesive

Merbenit contact adhesive is sprayed or applied using a tooth scraper. The thickness of the layer in the application should be between 0.2 and 0.5 mm. Adhesion is reached after a ventilation time of 4 to 8 minutes.

### Permanently elastic and self-levelling

The permanent elastic and self-levelling contact adhesive is solvent-, isocyanate-, silicone and water-free. There is no non-compatibility risk for adjacent materials. Merbenit contact adhesive is used for large-scale adhesion, has good adhesion without adhesion promoter on many substrates, is odorless, does not shrink and can be stressed after a period of 30 to 45 minutes.

### Consistency

Tooling time at +23 °C, 50 % rf

Curing speed after 24 hours, +23 °C, 50 % rf

Shore A hardness, DIN 53505,

Storage 21 days at +23 °C and 50 % rf

End resistance DIN 53504,

Storage 7 days at +23 °C and 50 % rf

Elongation at break DIN 53504

### Merbenit Contact adhesive

self-levelling

max. 8 minutes

≥ 2,0 mm

45

≥ 2,5 N/mm<sup>2</sup>

≥ 200 %



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