

## PRODUCT DATA SHEET

# Sikaflex®-117 Metal Force

Construction adhesive for bonding metals

### PRODUCT DESCRIPTION

Sikaflex®-117 Metal Force is a 1-part construction adhesive especially formulated for bonding metals.

### USES

An adhesive to bond different metals and construction components such as:

- Copper
- Brass
- Bronze
- Anodised aluminium
- Hot dipped galvanized and electrolytic galvanized steel
- Corrugated iron and metal sheets
- Metal facades and metal cladding
- Metal roof elements, cover plates and coverings
- Sky lights

An adhesive to bond most construction materials such as:

- Metals
- Concrete
- Masonry
- Most stones
- Ceramic
- Wood
- Glass

For interior and exterior use.

### PRODUCT INFORMATION

<b>Chemical Base</b>	Hybrid Silane terminated / Silane modified polyurethane
<b>Packaging</b>	290 ml cartridge, 12 cartridges per box
<b>Shelf Life</b>	12 months from the date of production
<b>Storage Conditions</b>	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +25 °C. Always refer to packaging.
<b>Colour</b>	Dark-brown, light-grey, copper.

### CHARACTERISTICS / ADVANTAGES

- Good adhesion to many metals.
- Very high stability and weatherability on metals, including copper.
- Very good workability.
- Very low emissions.

### ENVIRONMENTAL INFORMATION

- Conformity with LEED v4 EQc 2: Low-Emitting Materials.
- VOC emission classification GEV-Emicode EC1PLUS, license number 11751/20.10.00.
- VOC emission classification of building materials RTS M1.
- Class A+ according to French Regulation on VOC emissions.

Density ~1,35 kg/l (ISO 1183-1)

## TECHNICAL INFORMATION

Shore A Hardness	~40 (after 28 days)	(ISO 868)
Tensile Strength	~1,8 N/mm <sup>2</sup>	(ISO 37)
Elongation at Break	~300 %	(ISO 37)
Tear Propagation Resistance	~5,0 N/mm	(ISO 34)
Service Temperature	-40 °C min. / +80 °C max.	

## APPLICATION INFORMATION

Yield	Yield	Dimension
	1 Cartridge (290 ml)	
	~100 spots	Diameter = 30 mm Thickness = 4 mm
	~5 m bead *	Nozzle diameter = 5 mm (~60 ml per linear metre)
Sag Flow	~0 mm (20 mm profile, +23 °C)	(ISO 7390)
Ambient Air Temperature	+5 °C min. / +40 °C max.	
Substrate Temperature	+5 °C min. / +40 °C max., min. +3 °C above dew point temperature.	
Curing Rate	~3 mm/24 hours (+23 °C / 50 % r.h.)	Sika Corporate Quality Procedure (CQP 049-2)
Skin Time	~25 minutes (+23 °C / 50 % r.h.)	(CQP 019-1)

## VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## FURTHER DOCUMENTS

- Pre-treatment Chart Sealing and Bonding

## LIMITATIONS

- For optimum workability, the recommended adhesive temperature is +20 °C.
- Application during high temperature changes is not recommended (movement during the curing).
- Before bonding, check adhesion and compatibility of paints and coatings by carrying out preliminary trials.
- Sikaflex®-117 Metal Force can be overpainted with most conventional water-based coating and paint systems. However, they must first be tested to ensure compatibility by carrying out preliminary trials. The best over-painting results are obtained when the adhesive is allowed to fully cure. Note that non-flexible paint systems may impair the elasticity of the adhesive and lead to cracking of the paint film.
- Colour variations may occur due to exposure to chemicals, high temperatures and/or UV-radiation (especially with the colour shade white). However, a change in colour is purely of aesthetic nature and

does not adversely influence the technical performance or durability of the product.

- Always use Sikaflex®-117 Metal Force in conjunction with mechanical fixings for overhead applications or heavy items.
- For very heavy items provide temporary support until Sikaflex®-117 Metal Force has fully cured.
- Full surface applications / fixings are not recommended since the inner part of the adhesive layer may never cure.
- Before using on reconstituted, cast or natural stone, contact Sika Technical Services.
- Do not use on bituminous substrates, natural rubber, EPDM rubber or on any building materials which might leach oils, plasticisers or solvents that could degrade the adhesive.
- Do not use on polyethylene (PE), polypropylene (PP), polytetrafluoroethylene (PTFE / Teflon), and certain plasticised synthetic materials. Preliminary trials are recommended or contact Sika® Technical Services.
- Do not use for glass bonding if the bond line is exposed to sunlight.
- Do not use for structural bonding.
- Do not expose uncured Sikaflex®-117 Metal Force to alcohol containing products as this may interfere with the curing reaction.

## ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS

provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE PREPARATION

The substrate must be sound, clean, dry and free of all contaminants such as dirt, oil, grease, cement laitance, old sealants and poorly bonded paint coatings which could affect adhesion of the adhesive.

Sikaflex®-117 Metal Force adheres without primers and/or activators. However, for optimum adhesion and critical, high performance applications the following priming and/or pre-treatment procedures must be followed:

#### Non-porous substrates

Aluminium, anodised aluminium, stainless steel, galvanised steel, powder coated metals or glazed tiles, slightly roughen surface with a fine abrasive pad. Clean and pre-treat using Sika® Aktivator-205 applied with a clean cloth.

Before bonding, allow a waiting time of > 15 minutes (< 6 hours).

Other metals, such as copper, brass and titanium-zinc, clean and pre-treat using Sika® Aktivator-205 applied with a clean cloth. After a waiting time of > 15 minutes (< 6 hours). Apply Sika® Primer-3 N applied by brush. Allow a further waiting time of > 30 minutes (< 8 hours) before bonding.

PVC has to be cleaned and pre-treated using Sika® Primer-215 applied with a brush. Allow a waiting time of > 15 minutes (< 8 hours) before bonding.

#### Porous substrates

Concrete, aerated concrete and cement based-renders, mortars and bricks, prime surface using Sika® Primer-3 N applied by brush.

Before bonding, allow a waiting time of > 30 minutes (< 8 hours).

For more detailed advice and instructions contact Sika Technical Services.

Note: Primers are adhesion promoters and not an alternative to improve poor preparation / cleaning of joint surfaces. Primers also improve the long-term adhesion performance of a bond.

### APPLICATION METHOD / TOOLS

#### Bonding Procedure

After the necessary substrate preparation, cut the top of the cartridge before or after inserting into the sealant gun. Then cut the nozzle for the desired bead size and fit the nozzle onto the cartridge.

Apply in beads, strips or spots at intervals of a few centimetres each. Use hand pressure only to fix the components to be bonded into position before skinning of the adhesive occurs. Incorrectly positioned components can easily be unbonded and repositioned during the first few minutes after application. If necessary, use temporary adhesive tapes, wedges, or supports to hold the assembled components together during the initial curing time.

Fresh, uncured adhesive remaining on the surface must be removed immediately. Final strength will be reached after complete curing of Sikaflex®-117 Metal Force, i.e. after 24 to 48 hours at +23 °C, depending on the environmental conditions and adhesive layer thickness.

### CLEANING OF TOOLS

Clean all tools and application equipment immediately after use with Sika® Remover-208. Once cured, hardened material can only be removed mechanically. For cleaning skin use Sika® Cleaning Wipes-100.

### LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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