

# SILANE TERMINATED POLYMERS SIKA PRE-TREATMENT CHART

FOR SILANE TERMINATED POLYMERS (STP) – Sikaflex®-500 SERIES

## UTILISATION OF SIKA PRE-TREATMENT CHART

The information about the pre-treatment of surfaces in this document serves as a guideline only and must be verified by tests on original substrates. Project specific pre-treatment recommendations, based on laboratory tests, are available from Sika upon request. Always consult additional information.

# GENERAL RECOMMENDATIONS FOR Sikaflex®-500 SERIES

## PRECONDITION:

Surfaces have to be clean, dry and free of oil, grease, dust and loose particles. Depending on the nature of soiling, Sika® Remover-208, Sika® Cleaner P or another suitable cleaning solution may be used. For substrates that are prone to oxidation and/or have a weak surface layer it might be necessary to abrade the surface down to sound material. Verify compatibility with cleaning products.

Levels	Description
1	<ul style="list-style-type: none"> <li>General sealing applications, small components with low level of stress exposure</li> <li>Non-structural interior bonding applications, no exposure to temperature extremes, no contact with water</li> </ul>
2	<ul style="list-style-type: none"> <li>Sealing applications involving large components where higher joint movements are to be expected</li> <li>Interior and exterior bonding applications under normal environmental conditions</li> </ul>
3	<ul style="list-style-type: none"> <li>Other applications, not covered under Level 1 and 2, where additional requirements are specified</li> <li>Serial application</li> </ul>

Substrate	EN*	1			2			3
		Mechanical	Adhesion Promoter/Cleaner	Primer	Mechanical	Adhesion Promoter/Cleaner	Primer	
Aluminum (AlMg3, AlMgSi1 and similar)	1		SA-205 SA-100		AP-C AP-C	SA-205 SA-100		
Aluminum (anodized)	2		SA-205 SA-100				SP-210 SP-507	
Steel (mild)	3		SA-205 SA-100		AP-C AP-C		SP-210 SP-507	
Steel (stainless)	4		SA-205 SCP			SA-205 SA-100		
Steel (hot-dip galvanized, electrogalvanized)	5		SA-205 SCP			SA-205 SA-100		
Non-ferrous metals (copper, brass, bronze,...)	6	AP-C	SA-205	SP-210	AP-C	SA-205	SP-210	
2-Component top coat, water- and solvent based (PUR, acrylic)	7		SA-205 SCP			SA-205 SA-100		
Powder coat (Polyester (PES), EP/PES)	7		SA-205 SCP		AP-C AP-C	SA-205 SA-100		
2-Component paint primer, water- and solvent based (PUR, acrylic, epoxy)	7		SA-205 SCP			SA-205 SCP		
Cathode dip coating (e-coating)	7		SCP			SA-205 SCP		
Coil coating (mainly PES)	8		SA-205			SA-205 SA-306 LUM		
FRP (unsaturated polyester) gelcoat side or SMC	9		SA-205 SCP		AP-C AP-C	SA-205 SCP		
FRP (unsaturated polyester) lay-up side	9	AP-C AP-C	SA-205 SCP		AP-C AP-C	SA-205	SP-210	
ABS	10			SP-507 SA-205 SP-215			SP-507 SA-205 SP-215	
Hard PVC	10		SA-100			SA-100	SP-507	
Glass	11		SCP			SA-205 SCP		
Ceramic coated glass	11		SA-205 SCP			SA-205 SA-100		
Wood / Plywood	12			SP-210			SP-210 SP-215	
Glass Fibre Reinforced Polypropylene (Honeycomb panels)	13			SP-518 PP SP-518 PP			SP-518 PP SP-518 PP	

CONTACT SIKA TECHNICAL DEPARTMENT INDUSTRY

\* EN = Explanatory notes see page 4.



# PRODUCT DATA AND ABBREVIATIONS

The following product information is an abbreviated version of the current Product Data Sheets.

Sika® Aktivator	-100	-205	-306 LUM
Color of container cap	orange	yellow	white
Color of product	colorless, clear to yellowish	colorless, clear	colorless to slight yellow
Type of product	Adhesion promoter		
Application temperature	The general range is 10 – 35 °C. For specific values always refer to the most recent Product Data Sheet.		
Application	Wipe on / wipe off with a clean and lint-free paper towel (Sika® Aktivator-205 wipe on only)		
Consumption	Approximately 20 ml/m <sup>2</sup> (depending on application method).		
Flash-off time (23 °C / 50 % r.h.)	The minimal range of the flash-off time varies from 10 to 30 minutes depending on product, substrate and climatic conditions. For specific values always refer to the most recent Product Data Sheet.		

Sika® Primer	-210	-215	-518 PP	-507
Color of container cap	grey	dark blue	magenta	black
Color of product	transparent, yellowish	transparent, yellowish	transparent, clear	black
Type of product	Primer			
Application temperature	General range is 10 – 35 °C. For specific values refer always to the most recent Product Data Sheet.			
Preparation for use	n.a.		Shake bottle vigorously until the mixing balls rattle freely. Then continue shaking for an additional minute.	
Application	Brush / felt / foam applicator			
Consumption	Approximately 50 ml/m <sup>2</sup> (depending on application method and substrate porosity).			
Flash-off time (23 °C / 50 % r.h.)	The minimal range of the flash-off time varies from 10 to 30 minutes depending on product, substrate and climatic conditions. For specific values always refer to the most recent Product Data Sheet.			

**Notice:** Sika® activators and primers are moisture reactive systems. In order to maintain product quality it is important to reseal the container immediately after use. With frequent use i.e. opening and closing several times, it is recommend disposing of the product one month after the first opening. With infrequent use, it is recommend disposing of the product two months after opening.

When selecting a foam applicator, the solvent resistance must be considered. Suitable products include Sika® Cleaner PCA or melamine foam Basotect from BASF.

Abbreviation	Product/Explanation
	No special pre-treatment required
AP-C	Abrasive Pad, very fine (e.g. from Sia or 3M) followed by cleaning step, dry wipe or SCP
SCP	Sika® Cleaner P
SA-100	Sika® Aktivator-100
SA-205	Sika® Aktivator-205
SA-306 LUM	Sika® Aktivator-306 LUM
SP-507	Sika® Primer-507
SP-210	Sika® Primer-210
SP-215	Sika® Primer-215
SP-518 PP	Sika® Primer-518 PP

**Notice:** Not all products available globally.

Always consult additional information, such as General Guidelines "Bonding and Sealing with Sikaflex®", current Product Data Sheets, Safety Data Sheets, additional Product- and Technical Information, etc. prior to use of the products. Project oriented solutions are documented in Technical Service reports. These solutions can vary from the table opposite and take priority over the general recommendations provided in this Pre-Treatment Chart.

#### LEGAL DISCLAIMER

The information contained herein and any other advice 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. The information only applies to the application(s) and product(s) expressly referred to herein and is based on laboratory tests which do not replace practical tests. In case of changes in the parameters of the application, such as changes in substrates etc., or in case of a different application, consult Sika's Technical Service prior to using Sika products. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 can be downloaded on your local sika company website or will be supplied on request.

# EXPLANATORY NOTES ON SUBSTRATE PREPARATION AND TREATMENT

## 1. Aluminum

Alloys containing magnesium or silicon may form an unstable layer on the surface. This layer must be removed with a very fine abrasive pad.

## 2. Aluminum, anodized

For aluminum that has been surface treated, e.g. chromated, anodized or coated, a simple pre-treatment is usually sufficient. Due to the wide variety of anodizing treatments it is necessary to run preliminary tests to check for satisfactory adhesion.

## 3. Steel, mild

Depending on the exposure conditions, steel is subject to corrosion. Sika primers, which are applied to the surface in a very thin layer, do not provide corrosion protection as such, see also item General Information.

## 4. Steel, stainless

The terms "stainless steel" and "special steel" encompass a whole group with an important influence on the adhesion behavior. Adhesion can be improved by a prior scuffing step with a very fine abrasive pad.

## 5. Steel, hot-dip galvanized, electrogalvanized

The surface composition of hot-dip components is not uniform. It is therefore necessary to carry out periodic adhesion checks. Oiled zinc coated steel has to be degreased prior to use. In case of electrogalvanizing the substrate is prepared to a controlled specification and the composition of the surface layer is more or less uniform throughout. Do not use abrasives on electrogalvanized steel.

## 6. Non-ferrous metals

Metals like brass, copper and bronze are prone to interact with the sealant or adhesive. Therefore it is recommended to contact Sika for advice prior to use.

## 7. Surface coatings, paint finishes

As a general rule, successful bonding with Sikaflex® products is expected with the following paint systems: cathodic immersion coatings, powder coatings, epoxy or polyurethane paints. When using the following paint systems: polyvinyl butyral or epoxy resin ester, cohesion is often higher than adhesion to the substrate. Caution: the presence of paint additives may adversely affect adhesion to the paint surface. Certain coatings can be negatively influenced by weathering. Therefore they have to be protected against UV-light and other aging sources prior to bonding.

## 8. Coil coating

Coil coating is a process which is defined in EN 10169: 2010. It is the process for coating metal coils. Available coatings include polyesters, plastisols, polyurethanes, polyvinylidene fluorides (PVDF), epoxies. Due to the wide variety of coil coatings, it is necessary to run preliminary tests to check for satisfactory adhesion.

## 9. FRP (fibre reinforced plastic)

These materials consist for the most part of thermosetting plastics derived from unsaturated polyester, less commonly from epoxy vinyl ester or phenol formaldehyde resins. Newly manufactured components have not yet attained full cure, and as such are subject to further shrinkage following their removal from the mould. For this reason only aged or tempered FRP mouldings should be selected for adhesive bonding. The smooth side (gel coat side) may be contaminated by mould release agents which will adversely affect adhesion. The surface of the rough reverse side, which is exposed to the air during manufacturing has to be abraded thoroughly prior to additional surface preparation. Transparent or translucent FRP must follow the current UV-rules, see General Information.

## 10. Plastics

Some plastics require special physico-chemical treatment before they can be successfully bonded (flame treatment or plasma treatment in combination with chemical pre-treatment). Polypropylene and Polyethylene are two examples. With many plastic blends it is impossible to give specific guidance due to the potential variety of components and internal/external release agents they contain. Some engineered plastics such as ABS, PMMA and PC may contain substances which can be dissolved by the solvents that are part of the Sika® Primer formulation, which can then in some cases lead to issues with adhesion. Thermoplastics are subject to a risk of stress cracking. Thermally formed components must be destressed prior to adhesive bonding process. For transparent or translucent plastics see General Information on this page.

## 11. Glass/Ceramic coated glass

Due to production, some windscreens may have silicone contaminated ceramic coatings or glass surfaces. It can be removed by using Sika® Cleaner PCA.

## 12. Phenolic film faces plywood

These are waterproof plywood panels with a yellow or brown film facing. The surface preparation is the same as for paints and coatings. In some cases it could be necessary to grind the surface down to the wood and pre-treat it as such.

## 13. Glass Fibre Reinforce Polypropylene (Honeycomb panels)

Lightweight composite structures which combine high stiffness-to-weight ratio with excellent impact resistance and chemical stability. Prior bonding it is recommended to pre-treat with either physical treatment like plasma, corona, flame or chemical like Sika® Primer-518 PP.

## GENERAL INFORMATION

### Transparent or translucent substrates

With transparent or translucent substrates where the bonded surface is exposed to direct sunlight through the transparent or translucent layer, some form of UV barrier must be incorporated to shield the adhesive bond. This may consist of an opaque cover strip, an optically dense screen printed border or a black primer for semi-transparent substrates such as translucent FRP or screen prints. Due to the high UV exposure for exterior applications the sole use of black primers for UV protection is not sufficient. For interior applications and where the bondline is occasionally exposed to UV-light, a sole black primer for UV protection may be sufficient. Contact Technical Department of Sika Industry.

### Corrosion protection

All listed pre-treatment products in this chart are not designed to give comprehensive corrosion protection. In most cases primer layers protect the surface to a certain degree. Whether or not this protection is sufficient for specific processes is at the customers sole discretion.

### EPDM/SBR

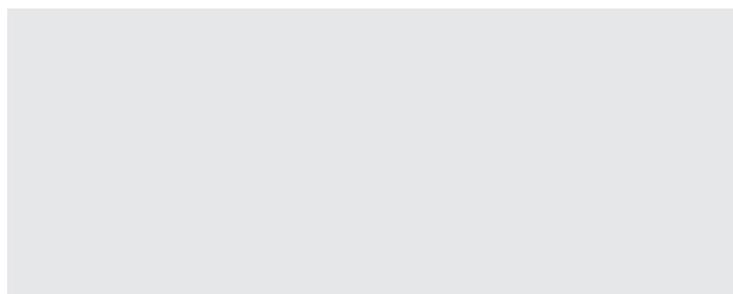
Rubbers can be made from natural caoutchouc or are produced artificially. Therefore nearly endless combinations are possible. For this reason each type of rubber has to be tested separately.

### ESC

At present environmental stress cracking (ESC) is one of the most common causes of unexpected brittle failure of thermoplastics, especially amorphous polymers. Key parameters to trigger ESC are: stress, liquid chemicals, environmental exposure. Each bonding process must be verified.

### Protective layer

Substrate surfaces with high variability like galvanization, anodization, coil coating, varnishing, finishing must be subjected to periodic inspections.



Our most current General Sales Conditions shall apply. Consult the most current local Product Data Sheet prior to any use.

## SIKA SERVICES AG

Tueffenwies 16  
CH-8048 Zurich  
Switzerland  
industry@ch.sika.com  
www.sika.com

**BUILDING TRUST**

