



Sika Pre-Treatment Chart

For Polyurethane Hybrids

Sikaflex[®]–500 Series –

Adhesives and Sealants



Version 2–US (2/2011)

Innovation & since
Consistency | 1910

Recommendations for Sikaflex® –500 Series

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

Precondition: Surfaces have to be dry, oil, fat and dust free. Soiled substrates can be cleaned with Sika® Remover-208. According to the nature of soiling, other methods such as water based cleaners, steam washer, etc. may be used. It is recommended to verify compatibility with the cleaning products.	Levels								
	1			2			3		
	Mechanical	Cleaning/ Activating	Primer	Mechanical	Cleaning/ Activating	Primer	Mechanical	Cleaning/ Activating	Primer
Aluminum (AlMg3, AlMgSi1) 1		205		AP	205				
Aluminum (anodized) 2		205			205	206 GP			
Steel (St37 etc.) 3		205		AP	205	206 GP			
Steel (Stainless steel) 4		205			205				
Steel (hot dipped, galvanized) 5		205			205				
2-Component top coat, water- and solvent based (PUR, acrylic) 9		205			205				
Powder coated (PES, EP/PES) 9		205		AP	205				
2-Component paint primer, water- and solvent based (PUR, acrylic, epoxy) 9		205			205				
E-coat 9					205				
Roll coating 9		205			205				
FRP (unsaturated polyester) gelcoat side or SMC 6 8		205		AP	205				
FRP (unsaturated polyester) lay-up side 6 8		AP	205	AP	205	206 GP			
ABS 7		205	215	AP	205	215	205	209 D	
Hard PVC 7		205		AP	205	215			
Glass 8					205				
Ceramic screen print 8		205			205				
Wood / Plywood (refer to 10 on page 4) 10						215			

Contact Technical Service Business Unit Industry

1) to 10) see last page „Explanatory Notes on Substrate Preparation“

	1* Process = Recommendation
	2* Process = Alternative
	For bonding/sealing process where no surface preparation (mechanical, cleaning/activating, primer) is required

Notice: Please also consult additional information on www.sikausa.com, actual Product Data Sheets, etc. Adhesion test are based on DIN 54457 and Internal Standard CQP 033-1.

Utilization of Sika Pre–Treatment Chart


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 on request.

	Sika® Remover–208	Sika® Aktivator–205 *
Color	colorless, clear	
Product Type	Cleaner	Adhesion Promoter
Application temperature	General range is 10 – 35°C (40 – 95°F). For specific values consult the corresponding Product Data Sheet.	
Application	paper towel	
Consumption	Approximate 0.05 oz/ft ²	
Flash–off time (23 °C / 50% r.h.)	The range varies from 10 to 30 minutes depending on product and climatic conditions. Please refer to the actual Product Data Sheet for specific values.	
Color of container cap	red	yellow

* Note: product name was changed from Sika® Cleaner–226 to Sika® Aktivator–205

	Sika® Primer–206 G+P	Sika® Primer–209 D	Sika® Primer–215
Color	black	black	transparent, yellow
Type of product	Primer		
Application temperature	General range is 10 – 35°C (50 – 95°F). For specific values consult the corresponding Product Data Sheet.		
Prearrangement	Shake can very thoroughly until mixing ball rattles freely. Continue shaking for another minute.	n.a.	
Application	Brush / felt / foam applicator		
Consumption	The consumption is in the range of 0.15 to 0.20 oz/ft ² . Porous substrates need approx. 0.30 oz/ft ² . For specific values consult the actual Product Data Sheet.		
Flash–off time (23 °C / 50% r.h.)	The range varies from 10 to 60 minutes to depending on product and climatic conditions. Please refer to the actual Product Data Sheet for specific values.		
Color of container cap	black	green	dark blue

Notice: Sika® Aktivators 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, we recommend to dispose of the product one month after opening. With infrequent use, we recommend to dispose of the product 2 months after opening. When selecting a foam applicator, the solvent resistance has to be taken into account, e.g. melamine foam Basotect from BASF is suitable. When using Hybrid products in combination with Polyurethane, the Polyurethane has to be fully cured prior to the Hybrid application.

Abbreviation	Product/Explanation
	No special pre–treatment required
AP	Abrasive Pad very fine
205	Sika® Aktivator–205 *
206 GP	Sika® Primer–206 G+P
209 D	Sika® Primer–209 D
215	Sika® Primer–215

* Note: product name was changed from Sika® Cleaner–226 to Sika® Aktivator–205

Legal Note

This 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, testing is required prior to using Sika products.

The information contained in this document(s), including but not limited to any recommendations regarding the use and application of Sika Corporation (“Sika”) product(s), is given in good faith based on Sika’s current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika’s instructions. The information contained in this document(s) is valid only for the applications and uses of Sika product(s) described herein. Any deviation from any of the instructions, uses, applications and recommendations contained in this document(s) regarding the Sika product(s) will void any Sika warranty. The user of the Sika product(s) must test each product for suitability for the intended application and purpose. The user of Sika product(s) must always read and follow the warnings and instructions for each product on the current Product Data Sheet, product label and Material Safety Data Sheets prior to product use. All sales of Sika product(s) are subject to its current terms and conditions of sale available at www.sikausa.com or 201–933–8800. Product Data Sheet(s) and Material Safety Data Sheet(s) are available at www.sikausa.com or at TSMH@sika-corp.com. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Product Data Sheet, product label and Material Safety Data Sheet.”

Explanatory Notes on Substrate Preparation

1. Aluminum

Aluminum and aluminum alloys are supplied in the form of profiles, sections, sheets, plates and castings. The information given here on surface preparation and priming relates to this group of products. Alloys containing magnesium may have water-soluble magnesium oxide on the surface. This oxide layer has to be removed with very fine abrasive pads. In the case of aluminum that has been surface treated (chromated, anodized or coated), a simple pre-treatment is normally the only type of surface preparation required.

2. Anodized Aluminum

Aluminum is a reactive material which oxidizes on exposure to air. Electrochemical or chemical oxidation causes a tough surface layer of uniform thickness to be formed. Surfaces treated in this way absorb dyes or pigments very successfully. In order to enhance the chemical resistance of the oxidized layer and /or seal in the color, translucent lacquers of varying chemical composition are normally applied to the surface. Preliminary tests are necessary to check for satisfactory adhesion to such substrates.

3. Steel

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.

4. Stainless steel

The terms "stainless steel" and "special steel" embrace a whole group of products of varying chemical composition with varying surface finishes. These have an important influence on the adhesion behavior. The surface may contain single type chromium oxide. Removing it with a very fine abrasive pad improves the adhesion.

5. Zinc-coated steel

The principal techniques for applying zinc coatings to steel are a) the Sendzimir process, b) electrogalvanizing, c) hot dip or continuous strip galvanizing. In the case of a) and b) the substrate is prepared to a controlled specification and the composition of the surface layer is more or less uniform throughout. The surface composition of hot dipped 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. Do not use abrasives in case of electrogalvanized steel.

6. FRP (glass fiber reinforced plastic)

These materials consist for the most part of thermosetting plastics derived from unsaturated polyesters, less commonly from epoxy resins

or polyurethanes. Newly manufactured components based on unsaturated polyesters contain quantities of styrene in monomeric form, recognized by its distinctive odor. These components have not yet attained full cure, and as such are subject to further shrinkage following their removal from the mold. For this reason only aged or tempered FRP moldings should be selected for adhesive bonding. The smooth side (gel coat side) may be contaminated with traces of mold release agent, which will adversely affect adhesion. The rough reverse side, which is exposed to the air during manufacture, usually contains paraffin, added to assist air drying. Here it is necessary to abrade the surface thoroughly prior to additional surface preparation. Thin section FRP moldings made from transparent or pale colored material are translucent. In such cases, a suitable UV barrier must be incorporated (see also point 9. Transparent or translucent substrates). In the case of flame retardant FRP components, preliminary tests must be carried out to determine the most appropriate method of surface preparation.

7. Plastics

Some plastics require special treatment before they can be successfully bonded (flame treatment or plasma etching 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. Thermoplastics are subject to a risk of stress cracking. Thermally formed components must be destressed prior to adhesive bonding by the controlled application of heat.

8. Transparent or translucent substrates

In the case of transparent or translucent substrates where the bond face 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 on external applications, a black primer as a sole UV protection is not suitable (exceptions may be for example prototypes with limited life expectancy). For in-house applications where the bondline is occasionally exposed to UV, a sole black primer for UV protection is normally suitable.

9. Surface coatings, paint finishes

Preliminary trials are necessary before attempting to bond substrates with an applied surface

coating. As a general rule, reactive systems that cure thermally (cathaphoretic immersion coatings, powder coatings) or by addition of polymerization (epoxy or polyurethane paints) can be successfully bonded with Sikaflex® products. Alkyd resin paints that dry by oxidation are not suitable for bonding. Paint systems that rely on a physical cure mechanism – typically coatings based on polyvinyl butyral or epoxy resin esters – are generally compatible with sealants only, i.e. not with adhesives. Caution: The presence of paint additives designed to modify film formation, such as conditioners, silicones, matting agents, etc., may adversely affect adhesion to the paint surface. Surface coatings must be monitored for consistency of quality and uniformity of composition through a quality assurance system.

10. Phenolic film faced plywood

These are waterproof plywood panels with a yellow or brown film facing. The surface preparation is the same as for paints and coatings. Due to the variety of coatings, the required adhesion may not always be achieved. In such cases, grind the surface down to the wood and pretreat it as such.

Overpaintability

Sikaflex® products can be overpainted with most conventional paint systems. With polyurethane hybrid sealants, the best results are obtained if the paint is applied before the sealant is allowed to obtain a cured skin. If overpainting is required, trials must be carried out to check compatibility with the paint system. Please note that non-flexible paint systems will impede joint movement, which in extreme cases can lead to cracking of the paint. PVC-based paints and paints that dry by oxidation (oil or alkyd resin based) are generally not suitable for application over Sikaflex® products.

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