

HYBRID SIKA® PRE-TREATMENT CHART

FOR POLYURETHANE HYBRIDS - Sikaflex®-500 SERIES
ADHESIVES AND SEALANTS

VERSION 4 (01 / 2015)

BUILDING TRUST



RECOMMENDATIONS FOR Sikaflex®-500 SERIES

PRECONDITION:

Surfaces have to be clean, dry and free of oil, fat, dust and loose particles. Soiled non porous substrates can be cleaned with Sika® Remover-208. According to the nature of soiling, Sika® Cleaner P, water based cleaners or steam washer etc may be used. For soiled porous substrates, grind surface down to sound material. It is recommended to verify compatibility with the cleaning products.

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 temperature extremes; no contact with water
2	<ul style="list-style-type: none"> Sealing applications involving large components where higher joint movements 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 asked for

		1			2			3
		Mechanical	Adhesion Promoter	Primer	Mechanical	Adhesion Promoter	Primer	
Aluminum (AlMg3, AlMgSi1)	1	▶▶▶	205	▶▶▶	▶▶▶	AP	205	▶▶▶
Aluminum (anodised)	2	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	205	▶▶▶ 206 GP ▶▶▶ 204 N
Steel (St37 etc.)	3	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	AP	▶▶▶ 205 ▶▶▶ 206 GP ▶▶▶ AP ▶▶▶ 205 ▶▶▶ 204 N
Steel (Stainless steel)	4	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Steel (hot dipped, galvanized)	5	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
2-Component top coat, water- and solvent based (PUR, acrylic)	10	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Powder coated (PES, EP/PES)	10	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	AP	▶▶▶ 205 ▶▶▶
2-Component paint primer, water- and solvent based (PUR, acrylic, epoxy)	10	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Cathode dip coating (e-coating)	10	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Coil coating	10	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶ ▶▶▶ SCA ▶▶▶
FRP (unsaturated polyester) gelcoat side or SMC	7	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	AP	▶▶▶ 205 ▶▶▶
FRP (unsaturated polyester) lay-up side	7	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	AP	▶▶▶ 205 ▶▶▶ 206 GP
ABS	8	▶▶▶	205	▶▶▶ 215	▶▶▶	▶▶▶	▶▶▶	▶▶▶ AP ▶▶▶ 205 ▶▶▶ 215 ▶▶▶ ▶▶▶ 205 ▶▶▶ 209 D
Hard PVC	8	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶ 215 ▶▶▶ AP ▶▶▶ 205 ▶▶▶
Glass	9	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Ceramic screen print	9	▶▶▶	205	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ 205 ▶▶▶
Wood / Plywood	11	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶	▶▶▶ ▶▶▶ 215

Details regarding 1 to 11 see last page "EXPLANATORY NOTES ON SUBSTRATE PREPARATION AND TREATMENT"

ALWAYS CONSULT ADDITIONAL INFORMATION, SUCH AS GENERAL GUIDELINES "BONDING AND SEALING WITH Sikaflex® AND SikaTack®", ACTUAL PRODUCT DATA SHEETS, SAFETY DATA SHEETS, ADDITIONAL PRODUCT- AND TECHNICAL INFORMATION, ETC. PRIOR TO USE OF THE PRODUCTS.

UTILISATION 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.

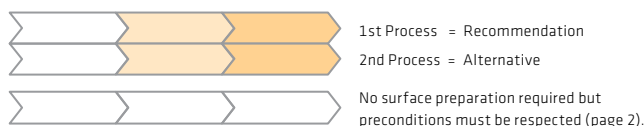
	Sika® Aktivator-205	Sika® Coating Aktivator
Color	colourless, clear	colourless to slight yellow
Type of product	Adhesion promoter	
Application temperature	General range is 10 - 35 °C (50 - 95 °F). For specific values refer always to the most recent Product Data Sheet.	
Application	Wipe with a clean and lint-free paper towel	
Consumption	Approximately 40 ml/m ²	
Flash-off time (23 °C / 50 % r.h.)	The range varies from 10 to 30 minutes depending on product and climatic conditions. For specific values refer always to the most recent Product Data Sheet.	
Color of container cap	yellow	white

	Sika® Primer-204 N	Sika® Primer-206 G+P	Sika® Primer-209 D	Sika® Primer-215
Color	opaque yellow	black	black	transparent, yellowish
Type of product	Primer			
Application temperature	General range is 10 - 35 °C (50 - 95 °F). For specific values refer always to the most recent 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 100 to 150 ml/m ² . Porous substrates need approx. 200 ml/m ² . For specific values refer always to the most recent Product Data Sheet.			
Flash-off time (23 °C / 50 % r.h.)	The range varies from 10 to 60 minutes depending on product and climatic conditions. For specific values refer always to the most recent Product Data Sheet.			
Color of container cap	light blue	black	green	dark blue

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, we recommend to dispose of the product one month after first opening. With infrequent use, we recommend to dispose of the product 2 months after opening. For further information refer to our "General Guidelines for Bonding and Sealing with Sikaflex® and SikaTack®".

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
SCA	Sika® Coating Aktivator
204 N	Sika® Primer-204 N
206 GP	Sika® Primer-206 G+P
209 D	Sika® Primer-209 D
215	Sika® Primer-215

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

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 usually sufficient.

2. Anodized aluminum

Aluminum is a reactive material which oxidizes on exposure to air. Anodization is an electrochemical or chemical process to protect aluminum from corrosion by forming a tough surface layer. Due to the wide variety of treatments such as coloring, sealing as well as the application of translucent lacquers of varying chemical composition, it is required to run preliminary tests to check for satisfactory adhesion.

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. By removing it with a very fine abrasive pad the adhesion can be improved.

5. Hot dipped, galvanized 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. 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 the use.

7. FRP (fibre 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 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 with mould 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 mouldings 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). Preliminary tests must be carried out to determine the most appropriate method of surface preparation.

8. Plastics

Some plastics require special physico-chemical 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 (e.g. engineering plastic) 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 process. For transparent or translucent plastics see point 9.

9. 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 application a black primer as a sole UV protection is not suitable. For inhouse applications and where the bondline is occasionally exposed to UV, a sole black primer for UV protection might be suitable.

10. 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 (cataphoretic immersion coatings, powder coatings) or by addition of polymerisation (epoxy or polyurethane paints) can usually be successfully bonded with Sikaflex® and SikaTack® 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. Consider that certain coatings can be

negatively influenced by weathering, for example if exposed during transport prior to the bonding and sealing process. Surface coatings must be monitored for consistency of quality and uniformity of composition through a quality assurance system.

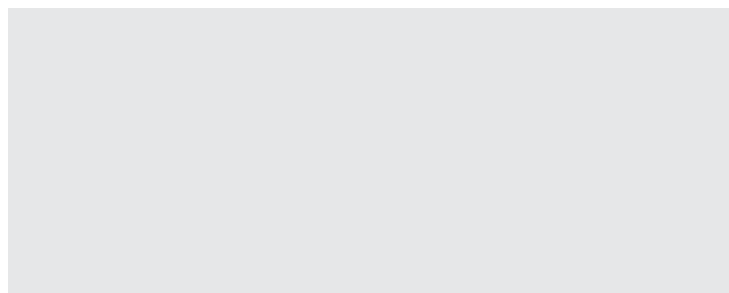
11. Phenolic film faced plywood

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 case grind the surface down to the wood and pre-treat it as such.

Overpaintability

Sikaflex®-500 Series products can be over painted with a variety of paint systems (including water based). Alkyd-based and acid-curing paints are not suitable. Over painting can be done wet-on-wet and up to 2 - 3 hours after application. Adhesion on fully cured Sikaflex®-500 Series products can be improved by treating the product with Sika® Aktivator-205 prior to painting.

Paints must be tested for compatibility by carrying out preliminary trials under manufacturing conditions. Note that non-flexible paint systems will impede joint movement, which in extreme cases can lead to cracking of the paint.



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