POLYURETHANE
SIKA PRE-TREATMENT CHART
FOR 1-COMPONENT POLYURETHANES – Sikaflex®-100 AND -200 SERIES

UTILIZATION 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.

VERSION 9 (03/2018)
**GENERAL RECOMMENDATIONS FOR Sikaflex®-100 AND -200 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.

<table>
<thead>
<tr>
<th>Levels</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1      | 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      | Sealing applications involving large components where higher joint movements are to be expected  
Interior and exterior bonding applications under normal environmental conditions |
| 3      | Other applications, not covered under Level 1 and 2, where additional requirements are specified  
Serial application |

<table>
<thead>
<tr>
<th>Substrate</th>
<th>EN*</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (AlMg3, AlMgSi1 and similar)</td>
<td>1</td>
<td>AP-C</td>
<td>SA-100</td>
<td>SP-207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum (anodized)</td>
<td>2</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel (mild)</td>
<td>3</td>
<td>SA-205</td>
<td>SP-204 N</td>
<td>SP-206 GP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel (stainless)</td>
<td>4</td>
<td>SA-100</td>
<td>SP-204 N</td>
<td>SP-206 GP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel (hot-dip galvanized, electrogalvanized)</td>
<td>5</td>
<td>SA-205</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-ferrous metals (copper, brass, bronze,...)</td>
<td>6</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SP-210</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Component top coat, water- and solvent based (PUR, acrylic)</td>
<td>7</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder coat (Polyester (PES), EP/PES)</td>
<td>7</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Component paint primer, water- and solvent based (PUR, acrylic, epoxy)</td>
<td>7</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cathode dip coating (e-coating)</td>
<td>7</td>
<td>SCP</td>
<td>SA-100</td>
<td>SP-207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil coating, mainly Polyester</td>
<td>8</td>
<td>SA-205</td>
<td>SCA</td>
<td>SP-207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP (unsaturated polyester) gelcoat side or SMC</td>
<td>9</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP (unsaturated polyester) lay-up side</td>
<td>9</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SP-207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP (Epoxy-matrix), CFRP</td>
<td>10</td>
<td>AP-C</td>
<td>SA-205</td>
<td>SP-207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABS</td>
<td>11</td>
<td>SA-100</td>
<td>SP-209 D</td>
<td>SP-215</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard PVC</td>
<td>11</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMMA / PC (without anti scratch coating)</td>
<td>12</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>13</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramic screen print</td>
<td>13</td>
<td>SA-100</td>
<td>SP-207</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood / Plywood</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* EN* = Explanatory notes see page 4.  
Note: Not all products available globally
The following product information is an abbreviated version of the current Product Data Sheets.

<table>
<thead>
<tr>
<th>Sika® Aktivator</th>
<th>-100</th>
<th>-205</th>
<th>Sika® Coating Aktivator*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color of activator cap</td>
<td>orange</td>
<td>yellow</td>
<td>white</td>
</tr>
<tr>
<td>Color of product</td>
<td>colorless to slight yellow</td>
<td>colorless, clear</td>
<td>colorless to slight yellow</td>
</tr>
<tr>
<td>Type of product</td>
<td>Adhesion promoter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application temperature</td>
<td>The general range is 10 – 35 °C. For specific values always refer to the most recent Product Data Sheet.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Wipe with a clean and lint-free paper towel (Sika Aktivator®-100 wipe on / wipe off application is required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>Approximately 20 ml/m² (depending on application method).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash-off time (23 °C / 50 % r.h.)</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sika® Primer</th>
<th>-204 N*</th>
<th>-206 G+P</th>
<th>-207</th>
<th>-209 D</th>
<th>-210</th>
<th>-215</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color of container cap</td>
<td>light blue</td>
<td>black</td>
<td>black</td>
<td>green</td>
<td>grey</td>
<td>dark blue</td>
</tr>
<tr>
<td>Color of product</td>
<td>opaque yellow</td>
<td>black</td>
<td>black</td>
<td>black</td>
<td>transparent, yellowish</td>
<td>transparent, yellowish</td>
</tr>
<tr>
<td>Type of product</td>
<td>Primer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application temperature</td>
<td>The general range is 10 – 35 °C. For specific values always refer to the most recent Product Data Sheet.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparation for use</td>
<td>Shake bottle vigorously until the mixing balls rattle freely. Then continue shaking for an additional minute.</td>
<td>n.a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Brush / felt / foam applicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>Approximately 50 ml/m² (depending on application method and substrate porosity).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash-off time (23 °C / 50 % r.h.)</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 2 months after opening. When selecting a foam applicator, the solvent resistance must be considered. Suitable products include Sika® Power Clean Aid or melamine foam Basotect from BASF.

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.

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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 or 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 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 Sheets(s) and 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 Safety Data Sheet.
EXPLANATORY NOTES ON SUBSTRATE PREPARATION AND TREATMENT

1. Aluminum
Alloys containing magnesium or silici-
um 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 usu-
ally sufficient. Due to the wide variety of
anodizing treatments it is neces-
sary to run preliminary tests to check
for satisfactory adhesion.

3. Steel, mild
Depending on the exposure conditions,
steel is subject to corrosion. Sikaprim-
ers, which are applied to the surface in
a very thin layer, do not provide corro-
sion protection as such; see also item
General Information.

4. Steel, stainless
The terms “stainless steel” and “spe-
cial 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 peri-
odic adhesion checks. Oiled zinc coat-
ed 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 uni-
form throughout. Do not use abrasives
on electrogalvanized steel.

6. Non-ferrous metals
Metals like brass, copper and bronze
are prone to interact with the seal-
ant or adhesive. Therefore it is re-
commended 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: cat-
aphoretic immersion coatings, powder
coatings, epoxy or polyurethane paints.
When using the following paint sys-
tems: 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 nega-
tively influenced by weathering. There-
fore they have to be protected against
UV-light and other aging sources prior
to bonding.

8. Coating coating
Coating is a process which is de-
finied in EN 10169: 2010. It is the pro-
cess for coating metal coils. Available
coatings include polyesters, plastisol,
polyurethanes, polyvinylidene fluo-
rides (PVDF), epoxies. Due to the wide
variety of coil coatings, it is necessary
to run preliminary tests to check for
satisfactory adhesion.

9. FRP (fiber reinforced plastic)
These materials consist for the most
part of thermostetting plastics de-
rived 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 follow-
ing their removal from the mould. For
this reason only aged or tempered FRP
mouldings should be selected for ad-
hesive bonding. The smooth side (gel
coat side) may be contaminated by
mould release agents which will ad-
versely affect adhesion. The surface of
the rough reverse side, which is ex-
posed to the air during manufacturing
has to be abraded thoroughly prior to
additional surface preparation. Trans-
parent or translucent FRP must follow
the current UV-rules, see General In-
formation.

10. CFRP
(Carbon-fiber-reinforced polymer)
These materials are plastics which
contain carbon fibers. The binding
polymer is often a thermoset resin
such as epoxy, but other thermoset
or thermoplastic polymers such as poly-
ester, vinyl ester or nylon are some-
times used. The properties of the final
CFRP product can also be affected by
the type of additives introduced to the
binding matrix (resin).

11. 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). Poly-
propylene and Polyethylene are two
examples. With many plastic blends it
is impossible to give specific guidance
due to the potential variety of com-
ponents 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 of 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 bond-
ning process. For transparent or trans-
lucent plastics see General Information
on this page.

12. PMMA/PC
Scratch resistant coating on PMMA
or PC must be removed in the bond-
ing area with sand paper (120 grit) and
pre-treated as defined for non-coated
substrates. Note that this last step
may impair the mechanical properties
of the PMMA/PC. Contact Sika for so-
lutions without removal of the coating.
See also further item 11 and con-
sider always the UV-rules mentioned
under “Transparent or translucent sub-
strates” and ESC under item General
Information.

13. Glass/Ceramic screen print
Due to production, some windscreens
may have silicone contaminated ce-
ramic screen print or glass. It can be re-
moved by using Sika® Power Clean Aid.

14. 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 sur-
face down to the wood and pre-treat
it as such.

GENERAL INFORMATION

Transparent or translucent substrates
With transparent or translucent sub-
strates where the bonded surface is
exposed to direct sunlight through the
transparent or translucent layer, some
form of UV barrier must be incorpo-
rated to shield the adhesive bond. This
may consist of an opaque cover strip,
an optically dense screen printed bor-
der or a black primer for semi-trans-
parent 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 interi-
or 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
cauotchouc or are produced artifici-
ally. Therefore nearly endless combina-
tions are possible. For this reason each
type of rubber has to be tested separately.

ESC
At present environmental stress crack-
ing (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, en-
vironmental exposure. Each bonding
process must be verified.

Protective layer
Substrate surfaces with high variabil-
ity like galvanization, anodization, coil
coating, varnishing, finishing must be
subjected to periodic inspections.