

## PRODUCT DATA SHEET

# Sikadur Combiflex<sup>®</sup> SG System

### HIGH PERFORMANCE JOINT SEALING SYSTEM

#### DESCRIPTION

High performance joint sealing system for construction, expansion and connection joints as well as for cracks. When fixed to the joint, allows irregular and high movement in more than one direction, whilst maintaining a high quality seal.

The Sikadur<sup>®</sup>-Combiflex<sup>®</sup> SG system consists of a modified flexible Polyolefin (FPO) waterproofing tape with advanced adhesion and a various range of suitable Sika<sup>®</sup> adhesives.

#### USES

Sealing system for expansion, construction and connection joints, as well as for cracks in:

- Tunnels and culverts
- Hydro electric power plants
- Sewage treatment plants
- Basements
- Water retaining structures and drinking water reservoirs
- Around iron, steel and concrete pipes
- Swimming pools

*Sealing of:*

- Joints with extreme movement
- Building sections where varying settlement is expected
- Cracks

*Repair / reinstatement of leaking joint system such as:*

- Waterbars
- Joint Sealant etc.

#### CHARACTERISTICS / ADVANTAGES

- Advanced adhesion, no activation on site required
- Easy to install
- Suitable for both dry and damp concrete surfaces
- Extremely flexible
- Performs well within a wide range of temperatures
- Excellent adhesion to many materials
- Weather and water resistant
- Available with normal and rapid hardening grades of adhesive
- Root resistant
- Good resistance to many chemicals
- Versatile system suitable for many difficult situations

#### APPROVALS / STANDARDS

Hygiene Institute: Test report No. K-178989-09 drinking water suitability according to KTW-Guideline of the Federal Environment Agency (UBA), July 2009 .

## PRODUCT INFORMATION

<b>Chemical base</b>	<i>Sikadur®31 CF:</i> Modified, solvent free, filled 2-part epoxy resin  <i>Sikadur-Combiflex® SG Tape:</i> modified flexible Polyolefin (FPO) with advanced adhesion
<b>Packaging</b>	Sikadur-Combiflex® SG system combi-pack <i>Sikadur®-31 CF:</i> 6 kg units (A+B) ready to use (just for Sikadur®-31 CF)  <i>Sika®-Combiflex® SG-20 P:</i> Thickness: 2 mm Width: 25 cm (other size, please contact our technical service Department) Rolls of 25 m
<b>Appearance / Colour</b>	Sikadur-31 CF: Light grey Sika®-Combiflex® SG-20 P Tape: Flexible light grey membrane
<b>Shelf life</b>	<i>Sikadur-31 CF:</i> 24 months from date of production if stored properly in undamaged and Unopened original sealed  <i>Sika®-Combiflex® SG-20 P:</i> Sika®-Combiflex® SG -20 P tape 36 months from date of production.
<b>Storage conditions</b>	<i>Sikadur-31 CF:</i> Stored in dry conditions at temperatures between +5°C and +30°C.  <i>Sika®-Combiflex® SG-20 P:</i> Stored in dry conditions at temperatures between +5°C and +30°C. Opened and unprotected rolls must be used within 2 month.

## TECHNICAL INFORMATION

<b>Tensile Strength</b>	> 12 N/mm <sup>2</sup>	(EN ISO 527/3/5 100)
<b>Tear Strength</b>	> 40 N/mm	(DIN 53 515)
<b>Elongation at break</b>	> 600 %	(EN ISO 527/3/5 100)
<b>Tensile Adhesion Strength</b>	Sikadur®-Combiflex® SG System (Sika®Combiflex® SG Tape glued with Sikadur®-Combiflex® CF Adhesive)	
	<u>Substrate</u>	<u>Bond Strength</u>
	Concrete (dry)	> 2 N/mm <sup>2</sup> (failure in concrete)
	Concrete (mat / damp)	> 2 N/mm <sup>2</sup> (failure in concrete)
	Steel (blastcleaned)	> 5 N/mm <sup>2</sup>
<b>Peel Strength</b>	Sikadur®-Combiflex® SG System: Sika® System test: Sika®-Combiflex® SG Tapes bonded to each other with Sikadur®-31 CF. Results: Strength: > 6 N/mm (2 mm) Strength: > 4 N/mm (1 mm)	
<b>Seam strength</b>	> 150 N/5 cm > 400 N/5 cm	(EN 12316-2) (EN 12317-2)
<b>Behaviour under hydrostatic pressure</b>	6 bar/72 h No leakage	(EN 1928-B)

## Chemical Resistance

Sikadur®-Combiflex® SG System (Sika®-Combiflex® SG Tape glued with Sikadur®-Combiflex® Adhesive and Sikadur®-31 CF)

### Longterm to:

Water, lime water, cement water, seawater, salt solutions, domestic sewage, bitumen (according to EN 1548), bitumen emulsion coatings (staining possible) etc.

### Temporary to:

Light fuel oil, diesel, diluted alkali and mineral acids, ethanol, methanol, petrol etc.

These chemical resistance indications may be used to determine the suitability of the sealing system. Regarding specific short term chemical resistance, please consult our technical service departments.

## SYSTEMS

### System Structure

The Sikadur®-Combiflex® System consists of the flexible Sika® Combiflex® SG-20 P sealing tape and a Sikadur® 31 CF epoxy adhesive.



## APPLICATION INFORMATION

### Consumption

Sikadur-Combiflex® SG Tape:

Sikadur®-Combiflex® CF Adhesive per metre length

<u>Tape width</u>	<u>Tape thickness</u>	<u>Adhesive consumption*</u>
<u>25 cm</u>	<u>2 mm</u>	<u>~ 1.7 kg/m</u>

\* The consumption can vary dependent on site conditions (surface roughness, size of aggregate etc.)

### Service Temperatureq

Sikadur®-Combiflex® SG System:

-30°C min. to +40°C max. in wet conditions

-30°C min. to +60°C max. in dry conditions

### Substrate Temperature

Sikadur®-31 CF:

Type Normal: from +10°C to +30°C

### Ambient Temperature

Sikadur®-31 CF:

Type Normal: from +10°C to +30°C

### Substrate Moisture Content

Cementitious substrates:

Dry, max. mat damp.

When applied to mat damp concrete, brush the adhesive well into substrate.

### Relative Air Humidity

85 % max. (at +25°C)

### Dew Point

Avoid condensation.

The substrate must be at least 3°C above dew point.

<b>Potlife</b>	Sikadur®-31 CF (0.2 kg)	
	<u>Temperature</u>	<u>Type Normal</u>
	<u>+10°C</u>	<u>~ 145 minutes</u>
	<u>+23°C</u>	<u>~ 55 minutes</u>
	<u>+30°C</u>	<u>~ 35 minutes</u>
If larger quantities are being mixed the temperature of the adhesive will increase due to the chemical reaction, resulting in a reduced potlife.		

**Waiting Time / Overcoating** Sikadur®-31 CF may be overcoated with an epoxy coating. In this case do not smooth the adhesive with detergent. If the waiting time between application of adhesive and overcoating is to be longer than 2 days, the adhesive must be blinded to excess with quartz sand immediately after application.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

*Concrete, stone, mortar, renderings:*  
Substrate must be clean, free from oil, grease, laitance or loose particles.  
Age of concrete 3-6 weeks depending on environmental conditions.

*Construction Steel 37, V2A-Steel (WN 1.4301):*  
Clean, free from oil, grease, rust and scale.

*Polyester, epoxy, ceramics, glass:*  
Clean, free from oil and grease.

### SUBSTRATE PREPARATION

*Concrete, stone, mortar, rendering:*  
Blastcleaning or equivalent mechanical means followed by thorough vacuum / dust removal.

*Construction Steel 37:*  
Blastcleaning or equivalent mechanical means followed by thorough vacuum / dust removal. Avoid dew point conditions for application.

*V2A-Steel (WN 1.4301):*  
Light grinding followed by thorough vacuum/dust removal. Avoid dew point conditions for application.

*Polyester, epoxy, ceramics, glass:*  
Light roughening followed by thorough vacuum/dust removal.  
Do not apply to siliconised substrates. Avoid dew point conditions for application.

### MIXING

Sikadur®-31 CF:  
Part A : B = 2 : 1 parts by weight or volume

Mix parts A+B together for at least 2 minutes with a mixing spindle attached to a slow speed electric drill (max. 500 rpm) until the material becomes smooth in consistency and a uniform grey colour.

Avoid aeration while mixing. Then, pour the whole mix into a clean container and stir again for approx. 1 more minute at low speed to keep air entrapment at a minimum. Mix only that quantity which can be used within its potlife.

### APPLICATION METHOD / TOOLS

Max. permissible permanent elongation:  
2 mm tape: 25% of the non adhered tape width

Note: For higher movement, place and fix tape in a loop into the joint.

#### Application of tape:

In case of dirt clean the surface of the Sikadur-combiflex® SG Tape with a dry or wet cloth. Use water and no solvent for cleaning.

Check the Sikadur-Combiflex® SG Tape in respect of damages during storage and transport (e.g. heavy scratches) and remove critical parts if necessary.

Note: No activation on site required

In case of expansion joints or cracks > 1 mm the centre of the tape must not be "bonded" to the substrate. In this case, apply masking tape on top of the joint / crack and on both sides of the joint before applying the adhesive.

Apply a suitable thoroughly mixed Sikadur® adhesive on both sides of the joint / crack onto the prepared substrate, using a suitable trowel. If the concrete substrate is damp, force the adhesive well into the substrate. Layer thickness of adhesive should be 1 -2 mm and the width on each side at least 40 mm.

Apply the Combiflex tape within the open time of the adhesive. Press the tape firmly and without trapping air into the adhesive by using a suitable roller. The adhesive should be squeezed out on both sides of the tape by ~ 5mm.

For fixing overhead or in difficult configurations, the tape may be temporarily held in place with Sika® Trocal Adhesive C-705. This adhesive, however may only be used in the tape centre but ever on the areas to be bonded with Sikadur-31 CF.

Let the base layer of the Sikadur®-31 CF lightly harden before the top layer is applied. Apply the adhesive at a Thickness of ~ 1 mm on both sides of the joint / crack, producing a cover which tapers outwards to almost zero.

This is followed by the removal of the the masking tape on both sides to ensure a neat and precise detail.

The adhesive top layer may be smoothed with a brush using a diluted detergent. Allow adhesive to start curing first.

Note: Do not use detergent if any coating is to be applied.

When sealing construction joints or cracks of up to 1 mm width, the tape may be completely covered with Sikadur®-31 CF which also then provides mechanical protection.

Connection of Sikadur-Combiflex® SG Tape: Tape ends are connected by hot air thermal welding. The welding area must be prepared by roughing the surface by scotch brite or sand paper.

Roughen the tapes only in the welding area otherwise the bonding effect can be affected.

Overlaps have to be 40 -50 mm.

## CLEANING OF TOOLS

Clean all tools and application equipment with Sika®-Colma-Cleaner immediately after use. Hardened / cured material (adhesive) can only be mechanically removed.

## LIMITATIONS

If joints are to be subjected to water pressure, the tape must be supported in the joint. Hard foam or joint sealant is recommended.

For exposure to negative water pressure the Sikadur-Combiflex® SG Tape must be secured with a steel plate fixed on one side.

Limit without support: For 5 mm joints at +20°C and max. 1 bar water head a tape of 2 mm thickness has to be installed.

If a bituminous wearing layer is installed on top of Sikadur- Combiflex® SG System the temperature of the hot mix must not exceed +180°C up to max. 50 mm thickness. Up to 10 mm thickness the temperature may be max. +220°C. If necessary apply in layers and allow to cool in between.

The Sikadur-Combiflex® SG Tape must be protected from mechanical damage.

The Sikadur-Combiflex® SG Tape can not be connected to the Sikaplan WT membranes by hot air welding.

## BASIS OF PRODUCT DATA

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

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data and uses.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## 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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