



PRODUCT DATA SHEET

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EXPANSION CONTROL

Sikadur® Combiflex SG System

SUPERIOR-PERFORMANCE “STRIP-AND-SEAL” SYSTEM FOR WIDE, IRREGULAR, HIGH MOVEMENT AND DIFFICULT-TO-SEAL JOINTS AND CRACKS

Description	Sikadur® Combiflex SG System is an internationally proven and superior-performance sealing system for wide, irregular, high movement and difficult-to-seal joints and cracks. The Sikadur® Combiflex SG System consists of a modified flexible Polyolefin (FPO) waterproofing tape with advanced adhesion using Sikadur®-31 Hi-Mod Gel ^{CA} , or Sikadur®-30. When fixed across the joint, the tape allows considerable movement in more than one direction, while maintaining a high-quality seal.
Where to Use	<ul style="list-style-type: none"> Construction joints, expansion joints, connecting joints or cracks in tunnels and underground structures. Waste-water treatment and containment structures. On many construction substrates, including concrete, mortar, plaster, asbestos cement, steel, iron, aluminum, wood, glass, polyester, epoxy and other building materials. Roofs, pipes, storage tanks, pools, reservoirs, additions to structures and parking garages. Difficult-to-seal joints or cracks where existing sealants cannot be removed and a surface-mounted seal is the solution.
Advantages	<ul style="list-style-type: none"> Advanced adhesion, no activation of tape required. Durable, economic and cost effective solution. Can restore failed joints without removing defective sealant. Contractor has advantages of always working on surface of substrate. Exceptional adhesion on virtually all common building materials; unmatched compatibility of tape and adhesive. Can even be applied on damp surfaces; Sikadur®-30 and Sikadur®-31 Hi-Mod Gel^{CA} are moisture-tolerant. Extended open time of Sikadur®-30 allows for ease of installation; fast-setting values of Sikadur®-31 Hi-Mod Gel^{CA} ensures quick turn-around. Waterproof, weather-, chemical- and root-resistant. Withstands UV light. ANSI/NSF Standard 61 approved for potable water (special order, ANSI/NSF grade Sikadur® Combiflex SG & Sikadur®-31 Hi-Mod Gel^{CA} only). Product qualified by The Road Authority (TRA).

Technical Data

Packaging	Sikadur®-30 adhesive: 3.7 L (0.98 US gal.) unit Sikadur®-31 Hi-Mod Gel ^{CA} adhesive: 10 L (2.6 US gal.) unit Sikadur® Combiflex SG tape: 100, 200 and 300 mm (4, 8 and 12 in) wide x 25 m (82 ft) long rolls	
Colour	Sikadur®-30 adhesive: Light Grey Sikadur®-31 Hi-Mod Gel ^{CA} adhesive: Concrete Grey Sikadur® Combiflex SG tape: Concrete Grey	
Shelf Life	1 year for Sikadur® Combiflex tape in original packaging. Protect Sikadur® Combiflex tape from direct sunlight. Store in cool, dry area. Condition each component between 18 and 29°C (65 and 29°F) before using.	
Yield	Sikadur®-30 adhesive: 1 st layer = 3.6 m ² (38 ft ²) at 1 mm (40 mils) thick per 3.7 L (0.98 US gal.) unit, or 1 st and 2 nd layer = 1.8 m ² (19 ft ²) at 1 mm (40 mils) thick per 3.7 L (0.98 US gal.) unit. Do not apply at thicknesses greater than 3 mm (1/8 in). Sikadur®-31 Hi-Mod Gel ^{CA} adhesive: 1 st layer = 10 m ² (100 ft ²) at 1 mm (40 mils) thick per 10 L (2.6 US gal.) unit, or 1 st and 2 nd layer = 5 m ² (50 ft ²) at 1 mm (40 mils) thick per 10 L (2.6 US gal.) unit. Do not apply at thicknesses greater than 3 mm (1/8 in).	
Mix Ratio	Sikadur®-30: 3:1 by volume Sikadur®-31 Hi-Mod Gel ^{CA} : 1:1 by volume	
Service Temperatures	-30 to 40 °C (-22 to 104 °F) wet conditions -30 to 60 °C (-22 to 140 °F) dry conditions	
Properties at 23 °C (73 °F) and 50 % R.H.		
Sikadur® Adhesives	Sikadur®-30	Sikadur®-31 Hi-Mod Gel^{CA}
Pot Life	Approx. 1 hr 30 min	30 min
Tack-Free Time	-	1 hr 30 min - 2 hrs (30 mils)
Note: Complete Sikadur® adhesive performance information available on respective Product Data Sheet.		

Sikadur® Combiflex SG Tape	
Tensile Properties ASTM D412	
Tensile strength	12 MPa (1740 psi)
Elongation at break	> 600 %
Recoverable elongation	10% (of non adhered tape width)
Tensile set after break	400 %
Tear Resistance ASTM D624	
	12 N/mm (69 lb/in)
Temperature at Embrittlement	
	-40 °C (-40 °F)
Peel Strength ASTM D903	
Concrete Substrate, 7 days	No loss of adhesion between Sikadur® Combiflex SG and Sikadur®-30 or Sikadur®-31 Hi-Mod Gel ^{CA} ; or between concrete and Sikadur®-30 or Sikadur®-31 Hi-Mod Gel ^{CA} .
Chemical Exposure	
	Long term 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.
<i>Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.</i>	

HOW TO USE

Surface Preparation

Substrate Preparation

Surfaces on either side of the joint or crack must be clean and sound. They may be damp but free from standing water and frost. Remove all existing coatings, impregnations, surface treatments, curing compounds, laitance, oil, grease, dirt, dust or other foreign and loose friable material by appropriate mechanical means, such as sandblasting, to achieve a suitably stable, fine gripping texture similar to ICRI-CSP 1-3.

Deteriorated concrete or cement substrates should be repaired to an even, level line using an appropriate Sika mortar prior to proceeding with Sikadur® Combiflex SG system installation.

Steel substrates should be prepared to a clean and sound condition. Remove all existing treatments such as coatings, sealers, wax, and contaminants i.e. dirt, dust, grease, oils, and foreign matter, which will interfere with the Sikadur® adhesives. Prepare steel substrates by appropriate mechanical means, such as abrasive blast-cleaning in order to achieve a clean, white metal profile equivalent to SSPC-SP10, Near White Metal, 2 - 4 mils anchor profile and apply adhesives immediately before oxidation of the steel occurs.

Tape Selection

Tape Selection

Selection of the correct tape size depends on the expected performance. If necessary, contact Sika Canada Technical Services for advice.

Maximum recoverable elongation: 1 mm (1/25 in) thickness tape: 10% of the non adhered tape width.

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

Tape Preparation

Prepare Sikadur® Combiflex SG tape by unrolling to allow tape to settle and flatten. Protect against contact with dirt or contaminants which would otherwise interfere with adhesion. If the surface of the Sikadur® Combiflex SG tape is contaminated or dirty, clean it with a dry or wet cloth. Use water but do not use solvent for cleaning. Check the Sikadur® Combiflex SG tape for damages during storage and transport (i.e. heavy scratches) and remove critical parts if necessary.

Note: No activation on site required.

Tape Jointing

Sikadur® Combiflex SG tape ends are connected by a process of localised abrading followed by hot air, thermal welding of an overlap.

With an overlap of 40 to 50 mm (1 3/4 to 2 in) in length, the contact surfaces within that overlap must be prepared by roughing the surface with grade 60 - 100 sandpaper or a Scotch® Brite pad. Thoroughly roughen both contact faces in the overlap, removing all traces of a sheen and creating clean, matte and textured surfaces.

Note: Only roughen the contact surfaces to be heat welded, otherwise the bonding effect of epoxy adhesives will be reduced.

Using a Leister Triac S or similarly effective heat-welder, with temperatures set at 380 - 400 °C, weld the tape overlaps together. A recommended process is to tack weld either edge/perimeter of the overlap and then completely weld the remainder.

While hot air welding, use a solid rubber or silicone roller to press the two heated contact faces together, ensuring that termination of each of the tapes is securely fastened, without gaps.

Assessment of the welds should be made once the overlap area has cooled. The desired level of adhesion is one where cohesive failure of the tape occurs before bond failure.

Adhesive Mixing

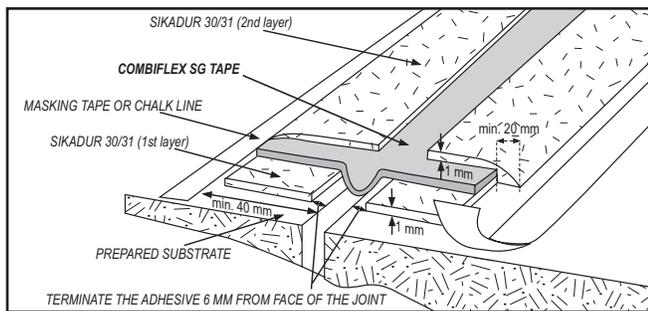
Pre-stir each component of Sikadur®-30 or Sikadur®-31 Hi-Mod Gel^{CA} to evenly distribute contents of each part and achieve consistent material. Empty contents of Component A and Component B, or correctly proportioned parts of either adhesive, into a suitably sized and clean mixing vessel if the supplied containers are not appropriate for such. Mix for 3 min using a low-speed drill (300 to 450 rpm) to minimize air entrapment. Use a *Exomixer* type mixing paddle (recommended model). During the mixing operation, scrape down the sides and bottom of the pail with a flat- or straight-edge trowel at least once to ensure thorough mixing. Upon completion of mixing, Sikadur®-30 or Sikadur®-31 Hi Mod Gel^{CA} should be uniform in colour and consistency. Mix only that quantity of Sikadur® adhesive which you can use within its pot life.

Application

1st Layer Adhesive: Apply a bonding layer of the mixed Sikadur®-30 or Sikadur®-31 Hi-Mod Gel^{CA} to the prepared surfaces, parallel to the joint or crack, at a width of at least 40 mm (1.6 in) on either side (depending on the type of joint or crack) and at a thickness of approx. 1 to 2 mm (1/25 to 1/12 in). Terminate the adhesive 6 mm (1/4 in) from the edges of the joint or crack. Work the adhesive into the substrate for positive adhesion and work to either masking tape or chalk mark-defined edges to achieve a neat edge.

Tape Installation: Set the Sikadur® Combiflex SG tape into the epoxy adhesive within the open-time and while the resin layer is tacky. Ensure that the tape is located centrally over the joint or crack as this will ensure that the crack or joint is adequately bridged to accommodate any movement. Using a hard roller, similar to a rubber seam or wall paper roller, force the tape down into the epoxy, ensuring that there is complete contact between the tape and the epoxy, with no air entrapment or unbonded locations.

2nd Layer Adhesive: Apply an encapsulating, 1 to 2 mm (1/25 to 1/12 in) thick layer of the mixed Sikadur®-30 or Sikadur®-31 Hi-Mod Gel^{CA} to the upper surface of the bonded Sikadur® Combiflex tape, extending this layer beyond the edge of the FPO tape and onto the underlying epoxy resin. Note: Ensure that no epoxy covers the surface of the Sikadur® Combiflex SG intended to allow for movement.



Clean Up

Uncured material can be removed from equipment and tools using Sika® Epoxy Cleaner. Cured material can only be removed manually or mechanically. For removal of uncured material from hands and sensitive surfaces, use Sika® Hand Cleaner towels.

Limitations

- Minimum age of new concrete is 3 to 6 weeks, depending on climate.
- Maximum ambient relative humidity is 95 %
- Minimum surface (substrate) temperature is 4 °C (39 °F).
- Do not apply over wet substrates and standing water.
- Do not thin Sikadur®-30 or Sikadur®-31 Hi-Mod Gel^{CA}, as solvents will prevent proper cure.
- It is not recommended to expose Sikadur®-30 or Sikadur®-31 Hi-Mod Gel^{CA} to elevated temperatures for prolonged periods.
- Where using Sikadur® Combiflex SG which has red masking tape centrally positioned on the FPO sheet, this must be removed prior to installation.
- Where bonding Sikadur® Combiflex SG to the former grade of Sikadur® Combiflex, use Sikaplan® WT as a connecting tape, adhering Sikadur® Combiflex SG to the Sikaplan® and then adhering the Sikaplan® to the former grade of Combiflex. Consult Sika Canada Technical Services for guidance.
- When Sikadur® Combiflex SG tape is used in traffic areas, cover-plates are required.
- Where in contact with potable water and requiring ANSI/NSF Standard 61-approval, special-order grades of Sikadur®-31 Hi-Mod Gel^{CA} and Sikadur® Combiflex SG tape must be used.
- 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.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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, within their shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: www.sika.ca

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