

Sikadur®-42 HP

Deep pour (up to 150 mm), multi purpose epoxy grouting system

Product Description

Sikadur®-42 HP is a three-component, multi-purpose, moisture tolerant, epoxy grouting system. It can be used for grouting applications up to 150 mm in depth.

Uses

High-strength grouting and fixing of:

- Starter bars
- Anchors
- Fasteners
- Tie rods
- Crash barrier posts
- Fence and railing posts

Under-grouting and bedding of:

- Base plates
- Machine bases, seat base-plates for light and heavy machinery including heavy impact and vibratory machinery, reciprocating engines, compressors, pumps, presses, etc.
- Bridge bearings
- Mechanical joints (i.e. road/bridge/deck types, etc.)

Sleeper-less, direct rail fixing:

- Crane tracks
- Light rail and permanent way in tunnels
- Light rail and permanent way over bridges

Characteristics / Advantages

- High early strength
- Ready-to-mix, pre-batched units
- Moisture tolerant
- Non-shrink
- Corrosion and chemically resistant
- Stress and impact resistant
- High compressive strength
- High vibration resistance
- Low coefficient of thermal expansion

Construction



Approval/Standard

Product Data

Form

Appearance / Colour	Concrete Grey	
Packaging	12 kg (A+B+C): pre-batched unit Component A - Resin 1.67 kg Component B - Hardener 0.33 kg Component C (Sikadur®-514) 10kg bag	144 kg (A+B+C): Bulk packaging Component A - Resin 20.04 kg Component B - Hardener 3.96 kg Component C - (Sikadur®-514) 10 kg bag x 12

Storage

Storage Conditions/ Shelf-Life	24 months from date of production if stored properly in original and unopened, sealed and undamaged packaging, in dry conditions at temperatures between +5°C and +30°C. Protect from direct sun light.
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Technical Data

Chemical Base	Epoxy resin.							
Density	2'130 kg/m ³ (A+B+C)							
Layer Thickness	Minimum grout depth: 10 mm Maximum grout depth: 150 mm							
	<table border="1"><tr><td>Temperature</td><td>10°-20°C</td><td>20°-30°C</td></tr><tr><td>Layer Thickness max.</td><td>150mm</td><td>120mm*</td></tr></table>	Temperature	10°-20°C	20°-30°C	Layer Thickness max.	150mm	120mm*	
Temperature	10°-20°C	20°-30°C						
Layer Thickness max.	150mm	120mm*						
	* no reduction of fillers; apply only with Mixing Ratio A : B : C = 1.66 : 0.33 (10-12)							

Change of Volume	Creep: 4.14 N/mm ² (600 psi) / 31'500 N (+60°C) 1.10% (According to ASTM C1181) 2.76 N/mm ² (400 psi) / 21'000 N (+60°C) 0.21% (According to ASTM C1181) API requirements: 0.5% with 2.76 N/mm ² load	
	Linear Shrinkage: -0.027%	(According to ASTM C531)
	Linear Shrinkage: -0.03%	(According to EN 52450)
Thermal Expansion Coefficient	2.1 x 10 ⁻⁵ mm/mm/°C (Temp. range -30°C - +30°C) 4.4 x 10 ⁻⁵ mm/mm/°C (Temp. range +24°C - +100°C)	(According to ASTM C531)
	2.7 x 10 ⁻⁵ mm/mm/°C (Temp. range -20°C - +60°C)	(According to EN 1770)
Water Absorption Coefficient W	0.059% (7 days)	(According to ASTM C413)
Thermal Stability	Heat Deflection Temperature HDT: HDT = +55°C (7 days / +23°C)	(According to ISO 75)
Effective Bearing Area	> 90%	(According to ASTM C 1339)

Mechanical / Physical Properties

Compressive Strength		(According to AS 1478.2)								
	<table border="1"><tr><td>Curing time</td><td>+23°C</td></tr><tr><td>6 hrs</td><td>20 N/mm²</td></tr><tr><td>1 day</td><td>90 N/mm²</td></tr><tr><td>7 days</td><td>>100 N/mm²</td></tr></table>	Curing time	+23°C	6 hrs	20 N/mm ²	1 day	90 N/mm ²	7 days	>100 N/mm ²	
Curing time	+23°C									
6 hrs	20 N/mm ²									
1 day	90 N/mm ²									
7 days	>100 N/mm ²									
	Product cured and tested at temperatures indicated.									
	Test specimen size: 50 * 50 * 50mm									
Flexural Strength	> 35 N/mm ²	(According to ASTM C580)								
Tensile Strength	> 14 N/mm ²	(According to ASTM D638)								
Bond Strength	> 47 N/mm ² (concrete failure) (slant shear) (According to According to ISO 4624, EN 1542 and EN 12188) ~ 9 N/mm ² (on steel) > 3.5 N/mm ² (concrete failure)	(According to ASTM C882)								
E-Modulus	~ 13'500 N/mm ² (Tangent modulus of elasticity in bending) ~ 18'000 N/mm ² (Compressive) ~ 16'000 N/mm ² (Flexural)	(ASTM C580) (According to ASTM D695-96) (According to EN 53452)								
Elongation	~ 1.3%	(ASTM D638)								
Elongation at Break	0.1 ± 0.05% (7 days at +23°C)	(According to ISO 75)								
Strength Development	Confirm the strength development by producing cubes on site and testing them for compressive and flexural strength.									
Thermal Compatibility	No delamination / pass	(According to ASTM C884)								
Exotherm Peak	44°C (at +23°C)	(According to ASTM D 2471)								

System Information

Application Details

Substrate Quality	<p>Mortar and concrete must be older than 28 days (dependent on minimum strength requirements).</p> <p>Verify the substrate strength (concrete, natural stone etc.).</p> <p>The substrate surface (all types) must be clean, dry and free from contaminants such as dirt, oil, grease, existing surface treatments and coatings etc.</p> <p>Steel substrates must be de-rusted to a standard equivalent to Sa 2.5</p> <p>The substrate must be sound and all loose particles must be removed.</p> <p>Substrate must be dry or mat damp and free from any standing water, ice etc.</p>
Substrate Preparation	<p>Concrete, mortar, stone: Substrates must be sound, dry, clean and free from laitance, ice, standing water, grease, oils, old surface treatments or coatings and all loose or friable particles must be removed to achieve a laitance and contaminant free, open textured surface.</p> <p>Steel: Must be cleaned and prepared thoroughly to an acceptable quality standard equivalent to SA 2.5 i.e. by blastcleaning and vacuum. Avoid dew point conditions.</p> <p>Surface and base plate contact area must be clean and sound. For best results, the substrate shall be dry. Remove dust, laitance, oils, grease, curing compounds, impregnations, waxes, foreign particles, coatings, and disintegrated materials by mechanical means, i.e. chipping with a chisel, blastcleaning etc.</p> <p>All anchor pockets or sleeves must be free of water. Apply grout immediately to prevent re-oxidizing / rust formation.</p> <p>For optimum results: When grouting areas or equipment that is sensitive to vibration, it is recommended that the contact surfaces are prepared according to the latest edition of the American Petroleum Institute's Recommended Practice 686 "Machinery Installation and Installation Design", Chapter 5.</p>

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +30°C max.
Ambient Temperature	+10°C min. / +30°C max.
Material Temperature	<p>Sikadur[®]-42 HP must be applied at temperatures between +10°C and +30°C.</p> <p>Condition the material by also storing at this temperature for 48 hours before use.</p>
Substrate Moisture Content	≤ 4% pbw
Dew Point	Substrate temperature during application must be at least 3°C above dew point to avoid condensation.

Application Instructions

Mixing

Part A : B : C = 1.67 : 0.33 : 10 by weight (Standard)
Solid / liquid = 5 : 1 by weight

Possibility to adjust the Mixing ratio, depending on Flowability:
Part A : B : C = 1.67 : 0.33 : (9-12) by weight
Solid / liquid = (4.5 – 6) : 1 by weight

Mixing Time



Pre-batched units:

Mix components A and B in the component A pail for 3 min with a paddle attached to a low speed drill (300-450 rpm). Avoid aeration while mixing until the material becomes uniformly blended in colour and viscosity. Place the mixed epoxy into an appropriate mixing vessel. Slowly add the contents of component C (to keep air entrapment at a minimum) dependent on flow requirements (observe the correct mixing ratio) and mix until uniform and homogeneous. (approx. 5 min)

Mix only that quantity which can be used within its potlife.

Bulk packing (not pre-batched):

First, stir each component thoroughly. Add the components in the correct proportions into a suitable mixing pail. Mix the components. Use an electric low speed mixer, etc as above for the pre-batched units.

Never mix Component A and B without adding component C (as the exothermic reaction between A and B alone generates excess heat)

Leave Sikadur®-42 HP to stand in the normal mixing vessel until the majority of entrained air bubbles have dispersed.

Application Method / Tools

Forming:

The consistency of the Sikadur®-42 HP epoxy grout system requires the use of permanent or temporary forms to contain the material around base plates, for example. In order to prevent leakage or seepage, all of these formers must be sealed. Apply polyethylene film or wax to all forms to prevent adhesion of the grout. Prepare the formwork to maintain more than 100 mm liquid head to facilitate placement. A grout box equipped with an inclined trough attached to the form will enhance the grout flow and minimize air encapsulation.

Pour the mixed grout into the prepared forms from one or two sides only, to eliminate air entrapment. Maintain the liquid head to ensure intimate contact to the base plate. Place sufficient epoxy grout in the forms to rise slightly above the underside (3 mm) of the base plate. The minimum void depth beneath the base-plate shall be 12 mm. Where the void beneath the base plate is greater than 150 mm, place the epoxy grout in successive 150 mm lifts or less, once the preceding lift has cooled.

Once hardened check the adhesion by tapping with a hammer.

Cleaning of Tools

Sweep excess grout into appropriate containers for disposal before it has hardened. Dispose of in accordance with applicable local regulations. Uncured material can be removed with Sika Colma Cleaner. Cured material can only be removed mechanically.

Potlife

(200g, adiabatic testing)

5 : 1 : 30	+10°C	+23°C
	130 minutes	75-80 minutes

The potlife begins when the resin and hardener are mixed. It is shorter at high temperatures and longer at low temperatures. The greater the quantity mixed, the shorter the potlife. To obtain longer workability at high temperatures, the mixed adhesive may be divided into portions. Another method is to chill parts A+B and C before mixing them (i.e. only when application temperatures are above +20°C).

Notes on Application / Limitations

Minimum substrate temperature: +10°C. The material must be conditioned by being stored in an area with an ambient temperature between +10°and +30°C for a minimum of 48 h before using. Do not thin with solvents. Solvents will prevent proper curing and change mechanical properties.

Sikadur®-42 HP is a vapour barrier when cured. Minimum grout depth: 10 mm. Maximum grout depth: 150 mm per lift. The last lift must be kept at 50 mm. Component C must be kept dry. For specific bolt grouting applications please refer to Sika Technical Services. For proper seating, allow the grout to rise above the bottom (3 mm) of the base plate.

Avoid splitting prebatched units to mix. Mix complete units only. Cold ambient, substrate or material temperatures will influence the curing and flow characteristics of Sikadur®-42 HP. Do not subject cured epoxy grout to sudden temperature changes especially during early curing stages. Contact Sika Technical Services for control joint spacing on large base plate grouting projects.

Health and Safety Information

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

Disclaimer

Sikagrout and Sikadur products are tested in accordance with Australian Standards and/or Internationally accepted Standards. The published performance data is achieved by testing strictly in accordance to the procedures of these standards.

Any test procedures performed by others on our products that are not in strict accordance with the standard in every facet will likely produce results different from the published above. On site testing by others can be affected by external factors such as incorrect mixing methods, poor sampling techniques, varying temperatures, curing, crushing procedures etc.

Sika can provide Certificates of Compliance of all products delivered to site prior to installation if required.

If results of site testing or testing facilities by others vary from the Sika published data we recommend the following items be reviewed before contacting the manufacturer as one or all of these items could be influencing the results attained on site.

These include but are not limited to the following: site conditions, ambient, substrate and product temperature, mixing equipment, mixer speed, pump equipment, contractor experience, and incorrect test methods.

Sika Australia do not take responsibility nor have to make a case for any such tests where results of testing by others do not achieve the published data as above.

Legal Notes

The information, and, in particular, the recommendations relating to the application and end-use of Sika's 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 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 proprietary rights of third parties must be observed. All orders are accepted subject of our terms and conditions of sale. Users should always refer to the most recent issue of the Australian version of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.

PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER



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