

Sikadur[®]-53

Water displacing epoxy resin grout

Construction

Description	Sikadur-53 is a pourable high density mortar, based on a 2-component solvent free epoxy resin containing fine fillers. Sikadur-53 is highly insoluble in water and readily displaces water enabling it to be employed in wet and underwater applications.
Uses	<p>Sikadur-53 may be used for underwater grouting work. Excellent adhesion to clean water immersed concrete, stone masonry, brick, wood or steel surfaces. Highly insoluble in water and safe for specialist diver use. Used for injection of cracks 0.5mm to 40mm wide under water (cracks not conducting a water flow under pressure). Ideal for pile jacketing using prepacked aggregate in formwork. Mixed with 30% by volume sand a high build paint is formed that is easy to apply under water.</p> <p>Sikadur-53 may be used to grout starter bars and bolts for underwater construction work. The material may also be used as a bonding bridge for underwater concreting and as a pipeline jointing material.</p>
Advantages	<ul style="list-style-type: none"> ▪ Applicable in wet, underwater or marine applications. ▪ Applicable at low temperatures. ▪ High mechanical strengths. ▪ Highly insoluble in water and suitable for application by specialist divers. ▪ Supplied in factory proportioned units. ▪ Shrink free. ▪ Excellent chemical resistance to water, sea water, waste water, sewage, fuels, oils, dilute acids and dilute alkalis.
Storage and Shelf Life	Minimum shelf life is approximately 3 years. Store under controlled conditions in original containers (minimum 5°C, maximum 35°C temperature range).
Instructions for Use	
Substrate Surface Preparation	Mechanically roughened, free from all contaminants (eg. dust, oils, grease) old coatings, algae and other marine growths. Suitable methods of preparation include water, abrasive blast cleaning or powered nylon brushes are suitable on some smaller areas. Blast cleaning to AS1627, class 2½ (commercial blast) standard is desirable for iron and steel.
Mixing	<p>Prior to mixing the components should be stored at 15-20°C for the previous 24 hours. Mix all of component A (Green Resin) with all of component B (Hardener) using a slow speed drill (maximum 600 rpm) and windmill stirrer. Mix until a homogeneous and streak free mixture results.</p> <p>If placing underwater allow to stand for 10-15 minutes after mixing before placing.</p>
Application	<p>Sikadur-53 may be applied to the prepared substrate by pouring into the void. Higher strengths achieved if placed using a tremmie placing technique rather than free fall through water. When using Sikadur-53 as a bonding bridge the material may be applied by brush or gloved hand. Ensure an even continuous film. Place fresh concrete immediately.</p> <p>If injecting cracks, pressure equipment may be used (eg. liquid tight bulk sealant gun; hand pumped grease filling equipment and high pressure pumping equipment may also be used).</p> <p>Large voids may be filled by pre-filling with clean aggregate. Where possible use coarse rounded river gravel not smaller than 8mm and pouring or injecting/tremmieing Sikadur-53 into the void, displacing the water (i.e. preplaced aggregate technique).</p>
Cleaning	Uncured material may be cleaned from application tools, etc. by using Sika Colma Cleaner (flammable solvent). Cured material can only be removed mechanically.

Technical and Physical Data

Form	Pourable grout	
Density	2 kg / litre approx.	
Volume solids	100% (solvent free)	
Compressive Strength (at 20°C)	24 hours	53 MPa
	2 days	61 MPa
	7 days	90 MPa
	14 days	92 MPa
Tensile Strength (DIN 53455)	30 MPa @ 20°C approx.	
Modulus of elasticity (FIP 5.13) 14 days, 20°C	Dynamic 7,800 MPa approx.	
	Static 6,300 MPa approx.	
Flexural strength @ 14 days	49 MPa approx.	
Shore D hardness @ 20°C after 10 days	81 approx.	
Impact resistance	0.254 MPa approx.	
	Izod JIS-K-6911	
Adhesion to steel (dry)	10 to 13 MPa approx. (cohesive failure of epoxy)	
Adhesion to concrete (underwater)	2.5 to 3.5 MPa approx. (cohesive failure to concrete)	
Insulation resistance (volume)	@ 20°C 8.2×10^{13} ohm cm approx.	
	@ 60°C 7.0×10^9 ohm cm approx.	
Mix proportions by weight	A : B = 8 : 1	
Mix proportions by volume	A : B = 3.6 : 1	
Viscosity @ 25°C	4.5 Pa.s approx.	
Potlife	50 minutes approx. @ 20°C for 1.8 kg mix	
	35 minutes approx. @ 20°C for 18 kg mix	
	(The temperature at which the Sikadur-53 is stored during the 24 hours before it is mixed will govern its potlife when mixed).	
Cure time	24 hours at 20°C	
Application Temperature (min. – max.)	5°C - 35°C	
Consumption/Coverage	2.0 kg/m ² approx. per mm thickness	
Maximum coating thickness	40 mm	
Colour	Mixed: Green	
	Part A: Green	
	Part B: Transparent	
Packaging	6 kg and 18 kg net pre-proportioned kits	

Important Notes

- Do not part mix kits.
- Only mix as much material as can be applied within the stated potlife.
- Do not dilute the product with solvent as this will affect both the cure and in-service performance of the product.
- Minimum thickness 0.5mm, maximum thickness 50mm.
- Do not apply under water at depths greater than 5m without referral to our Technical Department.
- The temperature at which the Sikadur-53 is stored during the 24 hours before it is mixed will govern it's potlife when mixed.
- Compressive strengths etc. of epoxy resins must be qualified by the testing method eg. Test Standard or size of specimen under test and the rate at which the test piece is loaded while under test as these factors will affect the result markedly. Faster loading rates will generally give higher ultimate loads and vice versa. Also a specimen at lower temperature will show higher strengths and vice versa
- If placing under water allow to stand 10-15 minutes before placing.

Handling Precautions

- Avoid contact with the skin, eyes and avoid breathing it's vapour.
- Wear protective gloves when mixing or using.
- If poisoning occurs, contact a doctor or Poisons Information Centre.
- If swallowed, do NOT induce vomiting. Give a glass of water.
- If skin contact occurs, remove contaminated clothing and wash skin thoroughly.
- If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.
- For more detailed information refer to our Material Safety Data Sheet.

Important Notification

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 Technical Data Sheet for the product concerned, copies of which will be supplied on request.

PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER INFORMATION.

