

PRODUCT DATA SHEET

SikaFlow[®]-648 ID

LOW CREEP, HIGH STRENGTH, HIGH FLOW, HIGH TEMPERATURE EPOXY GROUT

DESCRIPTION

SikaFlow[®]-648 ID is a precision epoxy resin grout, consisting of three components – resin, hardener and specially blended inert aggregates. On mixing, the components yield a high flow, high strength grout. The grout is designed for use even in narrow gaps under baseplates and to effectively transfer all static and dynamic loads to the equipment foundation even at elevated service temperatures..

USES

SikaFlow[®]-648 ID may only be used by experienced professionals.

SikaFlow[®]-648 ID is recommended for grouting heavy-duty machines exerting high dynamic loads on foundations. It is suitable for a minimum 15mm gap below the baseplate. The product is ideal for situations where:

- gaps below baseplates are narrow and / or where the baseplates are large.
- machine baseplates can attain high temperatures in service. E.g. heavy duty compressors in petrochemical industries.
- machines exert high vibratory / tensile loads on foundations. E.g. ball mills in the steel industry.
- the grout bed is likely to be exposed to spillage of aggressive chemicals. E.g. grout beds below machines in chemical industries.
- machines have to be commissioned quickly. E.g. production machines taken out for maintenance.

FEATURES

- High flow – Effective grouting of even narrow gaps and large baseplates.
- High tensile and flexural strengths – Efficient transfer of operational loads to foundation including high dynamic loads.
- High strengths even at elevated temperatures – Maintains alignment and level even with elevated baseplate temperatures.
- High bond strength – Protects machine from vibrations by effective dampening.
- High resistance to creep – Maintains alignment and level over long time.
- Good chemical resistance – Durable even when exposed to many industrial chemicals.
- High early strengths – Allows early load transfer and rapid commissioning of machines.
- Variable fill ratio – Flowability can be optimised for ease of application and to maximise the cost of effectiveness.

PRODUCT INFORMATION

Composition	Epoxy resin	
Packaging	Part A : 2.97 kg	Part A : 10.1 kg
	Part B : 1 kg	Part B : 3.4 kg
	Part C : 23.89 kg	Part C : 4 x 20.3 kg

Appearance and colour	Dark Grey
Shelf life	Parts A and B : 24 months from date of production. Must be protected from frost. Part C : 9 months from date of production. Must be protected from humidity.
Storage conditions	The products must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +10 °C and +30 °C.
Density	2.16 kg/L

TECHNICAL INFORMATION

Compressive strength	<u>1 day</u>	<u>75 N/mm²</u>	(ASTM C-579 B)
	<u>7 days</u>	<u>85 N/mm²</u>	
Product cured and tested at temperatures 23°C Test specimen size: (50 x 50 x 50) mm			
Flexural-strength	<u>7 days</u>	<u>25 N/mm²</u>	(ASTM C880)
Modulus of elasticity in flexure	<u>at 23°C</u>	<u>at 60°C</u>	(ASTM C-880-74)
	<u>11.0 Gpa</u>	<u>8.9 Gpa</u>	
Tensile strength	<u>7 days</u>	<u>13 N/mm²</u>	(ASTM C-307)
Shrinkage	0.0065 % (unrestrained-linear)		(ASTM C-531)
Creep	<u>7 days</u>	<u>6 x 10⁻³ cm/cm at 4.4 MPa load at 60°C</u>	(ASTM C-1181)
Coefficient of thermal expansion	41 x 10 ⁻⁶ cm/cm/°C (at temperature 23°C – 99°C)		(ASTM C-531))
Chemical resistance	SikaFlow®-648 ID resists non oxidising mineral acids and salts, caustics, dilute oxidising acids and salts, plus some organic acids and solvents. Chemical resistance depends on the chemicals involved, their concentration, temperature and degree of exposure.		

APPLICATION INFORMATION

Mixing ratio	Comp A : B : C = 2.97 : 1 : 23.89 by weight
Layer thickness	Minimum grout depth: 10 mm / Maximum grout depth: 150 mm
Ambient air temperature	+10 °C min. / +30 °C max.
Relative air humidity	70 % max.
Dew point	Substrate temperature during application must be at least 3 °C above dew point to avoid condensation.
Substrate temperature	+10 °C min. / +30 °C max.

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.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust. The concrete surfaces should be chipped and if there is a water leakage it must be drained or properly plugged. Surfaces should be dry. Particular attention should be paid to bolt holes to ensure that these are dry. Use vacuum and/or oil free compressed air to remove free standing water. The concrete areas to be grouted should not be primed or sealed. Base plates, bolts, etc. must be clean (SA 2½) and free of oil, grease and paint etc. to obtain proper adhesion. Set and align equipment. If shims are to be removed after the grout has set, then lightly grease them for easy removal. Priming the metal surfaces is only required when a long delay between cleaning and grouting will allow corrosion and contamination. A head box should be installed with the formwork to ease the pour and flow of the mixed grout. Ensure formwork is secure and watertight to prevent movement and leaking during the placing and curing of the grout. The area should be free of excessive vibration. Shut down adjacent machinery until the grout has hardened. In hot weather, base plates and foundations must be shaded from direct sunlight. Bags and buckets of grout should be stored in the shade prior to use. In cold weather, the temperature of base plates and foundations should be raised to over +10°C.

MIXING

The fill ratio is the weight of the aggregate to combined resin and hardener components. SikaFlow®-648 ID is designed to be utilised at a variable fill ratio (resin / aggregate). Resin and filler components can be purchased separately. Unlike most epoxy grouts, physical properties including high temperature performance are maintained. By determining the proper fill ratio for a particular project and purchasing accordingly, the cost per litre, flow and physical properties are optimised. Add all the contents of the hardener container to the resin part and mix thoroughly for at least 3 minutes. Transfer to a mechanical mixer. Add the aggregate, mixing thoroughly until a uniform consistency is obtained. At low temperatures (+10°C) the flow characteristics of SikaFlow®-648 ID will be reduced

and installation times increased.

APPLICATION

Lengths of metal strapping laid in the formwork prior to placing may be necessary to assist grout flow over large areas and in compacting and eliminating air pockets. Have sufficient manpower, materials and tools to make mixing and placing rapid and continuous. Where grout must flow some distance, make the initial batch slightly more fluid or flowable than required; this lubricates the surfaces and avoids blockage of the grout that follows. The grout shall be poured continuously and from one side only, to avoid entrapment of air while grouting. Maintain a constant hydrostatic head, preferably of at least 15 cm. On the side where the grout has been poured, allow 10 cm clearance between the side of the form and the base plate of the machine. On the opposite side allow 5-10 cm clearance between the formwork and the base plate. Due to differences in temperature between the grout under the base plate, and exposed shoulders that are subject to more rapid temperature changes, debonding and / or cracking can occur. Avoid shoulders wherever possible. If shoulders are required, they should be firmly anchored with reinforcing to the substrate to prevent debonding. Make sure grout fills the entire space to be grouted and remains in contact with the plate throughout the entire grouting placement.

Note: Do not use vibrator for placing the grout!

CLEANING OF EQUIPMENT

Clean the tools and equipment using thinner. Once 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 or Xylene based solvent. Cured material can only be removed mechanically.

LOCAL RESTRICTIONS

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

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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