BUILDING TRUST

PRODUCT DATA SHEET

SikaFlow®-648

(formerly MFlow 648)

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

DESCRIPTION

SikaFlow®-648 is a precision epoxy resin grout, consisting of 3 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 is recommended for grouting heavy-duty machines exerting high dynamic loads on foundations. It is suitable for 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. Eg: heavy duty compressors in petrochemical industries.
- Machines exert high vibratory / tensile loads on foundations. Eg. ball mills in the steel industry.
- The grout bed is likely to be exposed to spillage of aggressive chemicals. Eg. grout beds below machines in chemical industries.
- Machines have to be commissioned quickly. Eg. production machines taken out for maintenance.

CHARACTERISTICS / ADVANTAGES

- High flow - Effective grouting of even narrow gaps and large baseplates.
- High tensile and flexural strengths – Efficient transfer of operational loads to foundation. Withstands 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 whenexposed to certain industrial chemicals.
- High early strengths - Allows early load transfer. And Rapid commissioning of machines.
- Variable fill ration – Flowability can be optimized for ease of application and to maximize the cost of effectiveness.

PRODUCT INFORMATION

Packaging

Part A	10.1 kg
Part B	3.4 kg
Part C	22.7 kg

	Normal Flow	High Flow
Set	104.3 kg : 1A+1B+4C	81.6 kg : 1A+1B+3C
Yield	48 L	39 L

Shelf Life	Part A & B	12 months
	Part C	24 months
Storage Conditions	Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions and clear of the ground on pallets protected from rainfall prior to application. The resin parts need to be protected from frost!	

Density	**Temp**	**Normal Flow**	**High Flow**
	23°C	2.17 kg/L	2.09 kg/L

TECHNICAL INFORMATION

Compressive Strength	**MPa**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C 579 B)
	1 day	23°C	85	75	
	7 day	23°C	>100	85	
Tensile Strength in Flexure	**MPa**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C580-74)
	7 day	23°C	31*	28	
	*Cured 24hr at room temp. Post cured 16hr at 60°C, and conditioned 24hr at test temp.				
Modulus of Elasticity in Flexure	**GPa**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C580-74)
	7 day	23°C	15	11	
Tensile Strength	**MPa**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C 579 B, Modified 40mm cubes)
	7 day	23°C	15	13	
Shrinkage	**%**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C1181)
	Unrestrained-linear	23°C	0.005	0.0065	
Expansion	**cm/cm/°C**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C531)
	Co efficient of expansion	23°C - 99°C	$34x10^{-6}$	$41x10^{-6}$	
Creep	**@ 4.4 MPa load, cm/cm**	**Test Temp**	**Normal Flow**	**High Flow**	(ASTM C1181)
	7d	60°C	$4x10^{-3}$	$6x10^{-3}$	

Tensile Adhesion Strength	**MPa**	**Test Temp**	**Normal Flow**	(ASTM C 882-92 (adapted))
	7d	23°C	21	
	Tensile adhesion strength to steel			
Chemical Resistance	SikaFlow®-648 grout can resist non-oxidising mineral acids and salts, alkalis, dilute oxidising acids and salts and some organic acids and solvents. The level of resistance is dependent on the combination of chemicals it is exposed to, their individual temperatures, the duration of exposure, etc.			

Shear Adhesion	MPa	Test Temp	Normal Flow	(ASTM C 882-92 (adapted))
	7d	23°C	28	

Shear adhesion strength to steel

APPLICATION INFORMATION

Mixing Ratio

The fill ratio is the weight of aggregate to that of the combined resin and hardener components.

SikaFlow®-648 is designed to be utilized at a variable fill ratio from 6.75 : 1 (Normal flow – 4 bags of aggregate) to as low as 5.06 : 1 (High flow – 3 bags of aggregate)

SikaFlow®-648 maintains a high bearing area when fill ratios are decreased. In addition, physical properties, including high temperature performance, are maintained.

The chart below provides guidelines for th amount of aggregate that can be removed from a unit in order to optimize both flow and cost per cubic metre. In using this guide the temperature of the foundation and plate is the critical concern; however, grout and ambient temperature are also important.

Possible Reduction in Aggregate

Temperature	Normal Flow Mix for ≤ 2m flow and ≥ 50mm gap	High flow mix for > 2m flow and ≥ 50mm gap
> 32°C	NIL	NIL
21 - 32°C	NIL	Up to ½ bag
10 - 21°C	Up to ½ bag	½ to 1 bag

Yield		Normal Flow	High Flow
	Set	104.3 kg : 1A+1B+4C	81.6 kg : 1A+1B+3C
	Yield	48 L	39 L

Layer Thickness

SikaFlow®-648 can be used for deep pours. When pour thickness exceeds 150mm, use of the steel reinforcing bar and SikaFlow®-678 is recommended. With the unique variable fill ratio of SikaFlow®-648, the minimum pour thickness can be as low as 12mm in many applications.

BASIS OF PRODUCT DATA

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

ECOLOGY, HEALTH AND SAFETY

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in this product data sheet.Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w)

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

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 recom-

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