

# SikaGrout<sup>®</sup>-100

## Shrinkage Compensated high strength cementitious grout

Construction

<b>Description</b>	SikaGrout-100 is a ready mixed; high strength, highly fluid Portland cement grout containing an admixture that compensates for the shrinkage normally associated with Portland cement based grout.
<b>Uses</b>	<ul style="list-style-type: none"><li>■ For applications where gas generation curing plastic expansion is undesirable eg. hydrogen generation in underground mine applications.</li><li>■ Machine bedplates.</li><li>■ Anchor bolts.</li><li>■ Bridge bearing pads.</li><li>■ Pre-cast concrete sections.</li><li>■ Cavities, gaps and recesses.</li></ul>
<b>Advantages</b>	<ul style="list-style-type: none"><li>■ Shrinkage compensating properties, classed as a non-shrink grout as per CRD-C 621-81</li><li>■ High early strengths.</li><li>■ High 28 day strengths.</li><li>■ High flow characteristics.</li><li>■ Adjustable consistency.</li><li>■ Good impact and thermal resistance.</li><li>■ Expansion process is not facilitated by hydrogen gas generation.</li><li>■ Non corrosive to steel or iron.</li><li>■ Non-metallic, non-chloride containing with no corrosive or deleterious effects related to steel embrittlement.</li><li>■ Non-staining.</li><li>■ Lab tested in accordance with AS 1478.2</li></ul>
<b>Shelf life</b>	Stored in the original sealed packaging in dry conditions, this product will keep at least nine (9) months.
<b>Instructions for Use</b>	
<b>Surface Preparation</b>	<p>Correct and thorough surface preparation is essential to achieve the high performance qualities of SikaGrout-100.</p> <p>All surfaces must be clean, sound and free from dust, ice, oils, grease or other surface contaminants such as curing membranes and form release agent etc. Bolt holes and fixing pockets should be free of dirt and debris by air blasting. For Maximum bond, surfaces should be abraded or roughened, preferably by mechanical means such as needle gun, grit blasting, grinding etc.</p> <p>All prepared surfaces must be saturated with water several hours prior to grouting, providing a saturated surface dry substrate condition. Remove excess water from surfaces and bolt holes before introducing grout.</p>
<b>Formwork</b>	<p>The formwork used must be leak proof to allow for free flowing SikaGrout-100. The formwork should be arranged so that the grout head is maintained on the side above the level of the underside of the base plate. This will allow gravity flow to completely fill the void to be grouted.</p> <p>Formwork should be coated with form oil to allow easy removal of forms. Ensure adequate air holes are provided.</p>
<b>Temperature control</b>	Temperature effects setting time and rate of increase for strength. For optimum performance maintain grout, concrete and/or steel substrates within the range of 18-25°C prior to, during, and for 48 hours after placement of the grout.

<b>Temperature control (cont.)</b>	<p>At low temperatures (below 10°C) grout setting time is extended and bleeding may occur. As a result, base plate contact may be reduced. To reduce the setting of SikaGrout-100, accelerating admixtures such as Sika-4A or Sika Rapid-1 may be added.</p> <p>At high temperatures (greater than 30°C) grout setting is reduced, affecting placement. It is recommended that grouting at high temperatures be sheltered from the heat, or be conducted early in the morning.</p> <p>It is a good practice to keep materials cool in high temperatures using cold water for mixing. Setting times can also be increase using a retarding admixture such as SikaTard-930.</p> <p>It is suggested that site trials be conducted to determine optimum dosage rate for recommended admixture. For further details contact Sika's Technical Department.</p>
<b>Application</b>	
<b>Mixing equipment</b>	<p>SikaGrout-100 must be mechanically mixed using a mechanical grout mixer or a suitable drum mixer. The grout mixer will reduce the chances of the mix becoming lumpy or aerated.</p> <p>Smaller quantities should be mixed in clean drum using an electric drill and spiral drill and spiral mixer at a speed of approximately 500 rpm. DO NOT MIX BY HAND.</p>
<b>Mixing Method</b>	<ol style="list-style-type: none"> <li>1) Plastic grout, add 2.8 litres of water per 20kg bag. Flowable grout, add 3.7 litres of water per 20kg bag.</li> <li>2) Add the powder component to approximately 70% of the total amount water component while mixing.</li> <li>3) Add the remaining 30% of the water component to the grout at a steady rate while continuing to mix.</li> <li>4) Mix until the grout appears homogenous (3-5 minutes). Allow to stand so any entrapped air can escape. Do not add more water to increase flow of the grout if a mix has stiffened due to time delays. If the grout is unworkable discard.</li> </ol>
<b>Placement</b>	
1) Gravity Flow	<p>SikaGrout-100 can be placed by either gravity flow or by pump. It is essential that proper placing is completed without problems. Sufficient labour, grout and equipment must be present to ensure continuous placement.</p> <p>Mixed grout should be poured one side of the void to avoid air entrapment. Grout is best poured over short distances to ensure this. Use a suitable header box, maintaining the grout head at all times to ensure continuous flow.</p> <p>To facilitate grout compaction and top plate contact, use rodding, tamping or flexible strapping in short strokes while maintaining an adequate head of grout. Do not vibrate as this will cause segregation. Any adjacent machinery or equipment causing vibration should be shut down until initial set (5 to 6 hours)</p>
2) Pumping	<p>When pumping SikaGrout-100, ensure the pump is suitable for the grout consistency and for the distance and height it is to be pumped. A positive displacement pump is recommended. Place grout by pumping into the farthest corner, filling the space gradually. Ensure that air is not entrapped under the base plate.</p>
<b>Placement Thickness</b>	<p>Recommended thickness of SikaGrout-100 in one pour is 20mm to 50mm. Minimum thickness is 10mm. Maximum thickness in one pass is 100mm. Any grout pour that exceeds this should be done in stages, or have stone aggregate added to it, to reduce the exothermic heat. Contact Sika's Technical Department for further information.</p>



<b>Aggregate Addition</b>	<p>Coarse aggregate can be added to mixed SikaGrout-100 to achieve a stronger grout, to increase the thickness of grout placed in one pass, or to increase yield.</p> <p>It is recommended that aggregate size be 10mm, however as a guide the maximum aggregate size should not be more than 1/5 of the thickness of the section to be cast. The aggregate shape, and the quantity added, will effect the workability of the mix. Smooth rounded aggregate is found to produce the most workable mix.</p> <p>The recommended maximum aggregate addition rate is 20kg per 20kg bag of SikaGrout-100.</p>						
<b>Curing</b>	<p>Suitable curing methods such as plastic sheet, wet hessian, liquid membrane (eg, Antisol curing membranes) etc. must be used to protect the freshly applied grout from the drying effects of sun and wind. Curing must commence immediately after placement, and continue for at least 7 days. Curing is vital to the ultimate performance of grout as it allows optimum strength development and ensures tight contact with the baseplate.</p>						
<b>Cleaning</b>	<p>Remove uncured SikaGrout-100 from tools and equipment with water. Hardened material can only be removed mechanically.</p>						
<b>Technical Data (Typical)</b>							
<b>Form</b>	Grey Powder						
<b>Granulometry</b>	0-2.0 mm						
<b>Density</b>	2200 kg/m <sup>3</sup> approx. (dependent on water addition rate)						
<b>Pot life @ 20°C</b>	30 minutes approx.						
<b>Application temperature</b>	Minimum 5°C Maximum 35°C						
<b>Colour</b>	Dark grey (when mixed)						
<b>Yield @ 20°C</b>			Plastic		Flowable		
	Approximate yield per 20 kg bag		10 litres		11 litres		
	Approximate number of 20 kg bags required for 1m <sup>3</sup> of grout		96		88		
<b>Workability</b>	35 secs (flowable consistency) (Tested to AS1478.2-2005)						
<b>Setting times (hrs : mins) (Indicative)</b>	<b>Plastic</b>	<b>10°C</b>		<b>20°C</b>		<b>30°C</b>	
	<b>Set</b>	<b>Initial</b>	<b>Final</b>	<b>Initial</b>	<b>Final</b>	<b>Initial</b>	<b>Final</b>
	No retarder	7:30	11:30	2:00	3:45	2:05	3:15
	Retarder N 10 ml/bag	-	-	3:15	6:00	2:55	4:15
	Retarder N 20 ml/bag	-	-	5:15	8:15	4:35	5:40
	<b>Flowable</b>	<b>10°C</b>		<b>20°C</b>		<b>30°C</b>	
	<b>Set</b>	<b>Initial</b>	<b>Final</b>	<b>Initial</b>	<b>Final</b>	<b>Initial</b>	<b>Final</b>
	No retarder	11:00	18:30	6:45	8:00	4:45	5:15
	Retarder N 10 ml/bag	-	-	8:15	10:30	6:00	6:35
	Retarder N 20 ml/bag	-	-	11:30	14:30	8:15	9:15
<b>Typical Flow Distance Under Bearing Plate (mm) (Tested at 20°C Flowable consistency)</b>	<i>Gap Depth</i>		<i>Pouring Head</i>				
			100 mm		200 mm		
	10 mm		950		1550		
	20 mm		1150		2600		
	30 mm		1900		3200		
	40 mm		2800		3950		
50 mm		3700		4250			
<b>Packaging</b>	20 kg bag						



## Strength properties

Compressive Strength (MPa) (Tested at 20°C)	Age	Plastic	Flowable	
	1 day	40	20	
	3 days	55	35	
	7 days	75	60	
	28 days	90	75	
Compressive Strength (MPa) (Flowable consistency at varying temperatures)	Age	10°C	20°C	30°C
	1 day	17	20	25
	3 days	32	35	39
	7 days	52	60	70
	28 days	71	75	89
Compressive Strength (MPa) (Flowable consistency with addition of Sika Rapid-AF)	Age	SikaRapid-AF added 20 kg bag (ltr)		
		0.15	0.25	0.35
	6 hours	0.2	0.5	1.0
	8 hours	1.5	3	4
	12 hours	5	8	10
	1 day	25	25	25
Flexural Strength (MPa) (Tested at 20°C)	Age	Plastic	Flowable	
	1 day	1.5	2.3	
	3 days	2.9	4.1	
	7 days	8.2	9.7	
	28 days	9.4	10.8	

## Important Notes

- The strength values mentioned are the average values of laboratory test results. The results on the site may vary due to different environment, curing conditions and test method.
- For detailed information on grouting application and guidelines, refer to Sika Grouting Systems.
- Store Sika Grout 100 in dry conditions in unopened original packaging.
- Never apply to a dry substrate.
- Trials should always be conducted when adding a recommended Sika Admixture to Sika Grout 100 to determine the optimum dosage rates under local conditions.
- Sika Ferrogard 901 can be added to the mixing water (0.3 litres per 20kg bag) before mixing the grout to enhance protection of steel reinforcement.
- For dry pack consistency use Sika Grout GP.

## Handling Precautions

- Avoid contact with the skin.
- Protective gloves and clothing are recommended when mixing or using this product.
- A full Material Safety Data Sheet is available from Sika on request.

## 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 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 INFORMATION.

