

PRODUCT DATA SHEET

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CSC Master Format™ 03 64 23
EPOXY INJECTION GROUTING

Sika AnchorFix®-2 Arctic

FAST-SETTING AND STYRENE-FREE EPOXY ACRYLATE ANCHORING ADHESIVE FOR LOW TEMPERATURE INSTALLATIONS

Description	Sika AnchorFix®-2 Arctic is a two-component and styrene-free hybrid adhesive based on an epoxy acrylate resin. Incorporating specially formulated technology, Sika AnchorFix®-2 Arctic has been designed to operate in cold conditions, including use at -26 °C (-15 °F), set up quickly in dry or damp holes, and achieve high early strengths in numerous base materials. The anchoring gel is suitable for medium and heavy loads in both structural and non-structural applications.
Where to Use	<ul style="list-style-type: none"> Anchoring of rebar or threaded rods in concrete, masonry, voided stone and rock, hard natural stone and solid or hollow bricks and blocks. Grouting horizontally and vertically, where extremely rapid setting, fast turn-around times are needed. Best choice for inclement conditions, including cold temperatures and wet substrates. Grouting in external environments where applications are subject to dynamic loads and vibrations. Anchoring structural steel to concrete, safety barriers, balcony stanchions, canopies, signs, hand rails, racking, machinery, rolling cranes, masonry supports, stadium seats, reinforcing and starter bars.
Advantages	<ul style="list-style-type: none"> Sets up in dry, wet and flooded holes. Cures down to -26 °C (-15 °F) when material is pre-conditioned to at least 0 °C (32 °F). Styrene-free. Available in single piston cartridges. Approved for threaded bars in concrete. Allows fixings close to free edges. Reduced drilling diameters i.e. 2 mm anchor clearance results in economic installation. Flexible embedment depths. Resistant to a wide range of chemicals, including aqueous solutions of acetic acid, aluminum chloride and aluminium nitrate at 10% concentration, jet fuel, diesel fuel, domestic kerosene and many other substances at 75 °C (167 °F) while retaining at least 80% of physical values. (See Chemical Resistance Guide).
Approvals/ Certifications	<ul style="list-style-type: none"> ETAG 001: Part 5, Option 7 approval for M8-M30 galvanised and stainless steel threaded bars (see specifics below*). *4.6, 5.8, 8.8 & 10.9 galvanised steel & A4-70 and A4-80 stainless steel & 1.4529 HCR threaded bars in C20/25 to C50/60 non-cracked concrete. Product qualified by The Road Authority (TRA) and approved by the Ministry of Transportation of Ontario (MTO) as listed in the 9.30.25 prequalification list for Structural Dowel Adhesives - Acrylic and Epoxy Resins. Ministère des Transports du Québec (MTQ) approved. Product recognized by the British Columbia Ministry of Transportation (BC MoT).

Technical Data

Packaging	300 mL (10.1 US fl. oz) single piston cartridges/12 per case	
Colour	Grey	
Shelf Life	12 months if stored properly in original and unopened packaging and in cool and dry conditions, out of direct sunlight, and at temperatures between 0 and 20 °C (32 and 68 °F). Pre-condition product to above 0 °C (32 °F) to ease application when using hand dispensers and working at low temperatures.	
Mix Ratio	A:B = 10:1 by volume	
Properties at 20 °C (68 °F) and 50 % R.H. (unless specified otherwise)		
Density ASTM D1875	1.7 kg/L	
Application		
Temperature Resin & Substrate	Working Time	Loading Time
* -26 °C (-15 °F)		36 hrs
* -10 → -5 °C (14 → 23 °F)		12 hrs
* -5 → 0 °C (23 → 32 °F)	15 min	100 min
0 → 5 °C (32 → 41 °F)	10 min	75 min
5 → 10 °C (41 → 50 °F)	5 min	50 min
10 → 15 °C (50 → 59 °F)	3 min 45 sec	40 min
15 → 20 °C (59 → 68 °F)	2 min 30 sec	30 min
20 °C (68 °F)	100 sec	20 min

*Adhesive maintained at 0 °C (32 °F) minimum.

Compressive Strength	
4 hours (BS 6319)	60 MPa (8700 psi)
24 hours (ASTM D695)	76 MPa (11 000 psi)
7 days (ASTM D695)	81 MPa (11 750 psi)
Compressive E-Modulus ASTM D695	
24 hours & 7 days	5.0 KPa
Tensile Strength ASTM D638	
24 hours	13.5 MPa (1957 psi)
7 days	15.2 MPa (2200 psi)
Tensile Strength ASTM D638 (Elongation at Break)	
24 hours	6 %
7 days	6.7 %
Tensile Modulus ASTM D638	
24 hours	3.0 KPa
7 days	5.0 KPa
Flexural Strength ASTM D790	
24 hours	42 MPa (6090 psi)
7 days	40 MPa (5800 psi)
Heat Deflection Temperature ASTM D648	
	76 °C (168.8 °F)
Electrical Conductivity/Dissipation	
	5.1 ^E +09 Ωcm @ 500 V
	5.4 ^E +09 Ωcm @ 1000 V
	5.3 ^E +09 Ωcm @ 2000 V
	5.0 ^E +09 Ωcm @ 4000 V
Sustained Load ETAG 001 Part 5	
	Maximum long term service temperature 50 °C (122 °F)
	Maximum short term service temperature 80 °C (176 °F)
Freeze/Thaw Resistance ETAG 001 Part 5	
Bonded anchor is not sensitive to the effects of freeze/thaw cycles based on the tensile pull-out test after 50 cycles.	
<i>Temp. increase to 20 °C +/- 2 (68 °F +/- 2) in 1 hour, stabilized during 7 hours (8 hours total)</i>	
<i>Temp. decrease to -20 °C +/- 2 (-4 °F +/- 2) in 2 hours, stabilized during 14 hours (total 19 hours)</i>	
Contact with Water	
Suitable for use in flooded holes and in contact with water	
Suitable for installation into damp base material	
<i>Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.</i>	

Design Data Please consult Specification Documents (available from Sika Canada) for design data including anchorage, lap and splice lengths, ultimate tensile loads, shear stresses and fire resistance information.

HOW TO USE

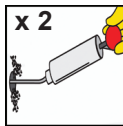
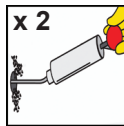
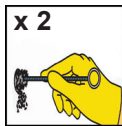
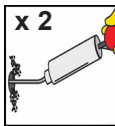
Surface Preparation Surfaces must be clean and sound. Surfaces/holes may be dry, damp, wet or water filled. Remove dust, laitance, grease, oil curing compounds, impregnations, waxes, foreign particles and disintegrated materials. Substrate strengths must be verified, with pull-out tests being conducted if strength is unknown.

Application

Solid Substrate Installation



1. Drill the hole to the correct diameter and depth. This can be done with either a rotary percussive or rotary machine depending upon the substrate.

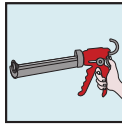
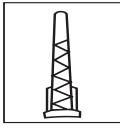


2. Thoroughly clean the hole in the above sequence. Use an air lance inserted into the back of the hole with the trigger depressed for 2 seconds, blow out all debris. The compressed air must be free from oil and water with a minimum pressure of 6 bar (90 psi).

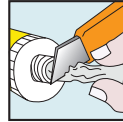
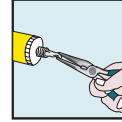
If using a hand pump for holes of 400 mm (16 in) deep or less, pump twice to achieve clean holes. If the hole collects water after the initial cleaning this water must be removed before injecting the resin.

3. Select an appropriate sized brush, ensuring it is in good condition and suited to the diameter of the drilled hole. Insert the brush to the back of the hole and pull out using a back and forth rotating motion to remove all loose friable material. Repeat the brushing operation.

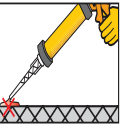
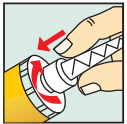
Repeat the steps 2 and 3, finishing with step 2. must be removed before injecting the resin. Avoid standing water.



4. Select the appropriate static mixer nozzle for the installation. Also make ready a good quality dispensing gun, ensuring it is in good working order and of sufficient mechanical advantage (at least 26:1) to extrude the anchoring gel. Recommended dispensers include: Cox "Ascot" or "PPM 750" manual dispensers and Cox "PPA 750" pneumatic dispensers, depending upon product format and size. Wherever practical, use pneumatic dispensers for optimum ease of dispensing.

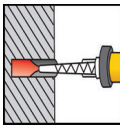


5. Unscrew and remove the threaded cap. Using pliers or similar, firmly pull out the exposed and wire tied plastic film until the bag cannot be pulled any further and cut the bag flush with the threaded opening to the cartridge. Ensure that none of the bag protrudes sufficient to then block the static mixer nozzle.



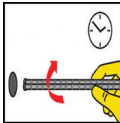
6. Screw the static mixer nozzle to the cartridge and insert the assemblage into the dispensing gun. Trigger the dispenser until a uniform colour (no streaking) and consistency are achieved with unmixed material going to waste.

If necessary, cut an extension tube to the depth of the hole and push onto the end of the static mixer, and (for rebars 16 mm (5/8 in) diameter or more) fit the correct resin stopper to the other end.



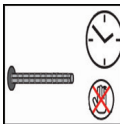
7. Insert the static mixer tip (resin stopper / extension tube if applicable) to the base of the hole. Begin to extrude the resin, under constant and uniform pressure, and slowly withdraw the static mixer from the hole. Fill the hole to approximately $\frac{1}{2}$ to $\frac{3}{4}$ full and remove the static mixer completely.

Note: If dispensing is interrupted or altered, re-establish consistency of resin prior to continuing. When using a manual dispenser, release piston pressure by pressing thumb plate at every pause in extrusion.



8. Insert the threaded bar or reinforcing bar (both should be free from oil or other release agents) to the back of the hole using a back and forth rotating motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated working time.

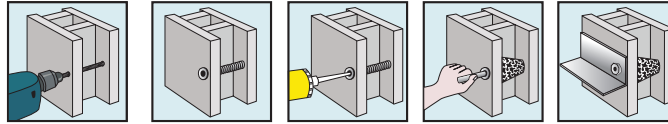
Any excess resin should be expelled from the hole evenly around the steel element showing that the hole is full. This excess resin should be removed from around the opening to the hole before it sets.



9. Leave the anchor undisturbed until the appropriate loading time has been achieved, which will be dependent upon the substrate conditions and ambient temperatures.

10. Attach the fixture and tighten the nut to the recommended torque, DO NOT OVERTIGHTEN.

Hollow Substrate Installation



1. Drill the hole. Then insert the brush using one stroke to clean followed by one blast of oil-free compressed air. Ensure that the drilled hole dimensions are suitable to accommodate a perforated sleeve of the appropriate length and diameter.
2. Select the appropriate perforated sleeve and insert into the hole.
3. Insert the static mixer to the back of the perforated sleeve, withdraw 2 - 3 mm (1/16 - 1/8 in) then begin to extrude the resin and slowly withdraw the static mixer from the hole ensuring that there are no air voids as it is withdrawn. Fill the perforated sleeve completely and remove the static mixer completely.
4. Follow instructions for Solid Substrate Installation 8 – 10, ensuring that working and loading times are adhered to before attaching any fixtures and tightening to the recommended torque, where being employed.

Clean Up

Collect with absorbent material. Dispose of in accordance with local disposal regulations. Uncured material can be removed with Sika® Epoxy Cleaner. Cured material can only be removed mechanically.

Limitations

- Sika AnchorFix®-2 Arctic is not intended as a cosmetic or decorative material and when anchoring into porous substrates or reconstituted stone, staining may occur. Where this is of concern, it is recommended that Sika Canada be consulted for advice and discrete trial applications be undertaken and assessed before proceeding.
- Store material to above 0 °C (32 °F) and for ease of application by manual dispensers, precondition to higher temperatures, i.e., the higher the temperature the easier to dispense. Take into consideration reduced working times.
- Minimum age of concrete must be 28 days, depending on curing conditions.
- Do not thin; solvents will prevent proper cure.
- Ensure that the cartridge is correctly prepared: the threaded cap removed, the top of bag in the cartridge firmly pulled with pliers until resistance and cut flush with the threaded opening, the static nozzle firmly screwed onto the threaded opening, but not over tightened so as to damage the nozzle.
- Do not use in overhead applications without the express written approval of Sika Canada Inc.
- Standard and quality of dispenser will impact upon ease of extrusion, especially when using manual equipment; ensure the mechanical advantage is appropriate, pistons are correctly aligned and even pressure is achievable.
- Sika AnchorFix®-2 Arctic must only be applied on or into substrates when they are frost-free.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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, within their shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: www.sika.ca

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