Construction

Sika AnchorFix®-1

Fast curing anchoring adhesive

Product Description	Solvent- and styrene free based two part polyester anchoring adhesive.
Uses	As a fast curing anchoring adhesive for all grades of: ■ Rebars / reinforcing steel ■ Threaded rods ■ Bolts and special fastening systems ■ Concrete ■ Hollow and solid masonry ■ Hard natural stone ■ Solid rock Prior to any application, the suitability of the Sika AnchorFix® Adhesive for the substrate in terms of the desired bond strength, and for the prevention of surface staining or discolouration, must be confirmed by testing in a sample area. This is due to the wide variation of possible substrates, particularly in terms of strength, composition and porosity:
Characteristics / Advantages	■ Fast curing ■ Standard guns can be used ■ Can be used at low temperatures ■ High load capacity ■ Non-sag, even overhead ■ Styrene-free ■ Low odour ■ Low wastage ■ No transportation restrictions

Product Data

Form

Colours

Part A:	white
Part B:	black
Part A+B mixed:	light grey

Stone colour:

Part A:	white
Part B:	salmon
Part A+B mixed:	beige

Packaging

300 ml standard cartridge, 12 per box.
Pallet: 60 boxes with 12 cartridges.

Storage

Storage Conditions / Shelf-Life

12 months form date of production if stored properly in original unopened, sealed and undamaged packaging in cool and dry conditions at temperatures between 0℃ and +20℃. Protect from direct sunlight.

All Sika AnchorFix®-1 cartridges have the expiry date printed on the label.

Technical Data

Density

1.63 kg/l (part A+B mixed).

Curing Speed

Curing speed temperature	Open Time T_{gel}	Curing Time T_{cur}
-10℃	30 minutes	24 hours
+5℃	18 minutes	145 minutes
+10℃	10 minutes	85 minutes
+20℃	6 minutes	50 minutes
+30℃	4 minutes	35 minutes

For application at -10℃ store cartridges at +5℃.

Sag Flow

Non-sag, even overhead.

Layer Thickness

3 mm max.

Thermal Stability

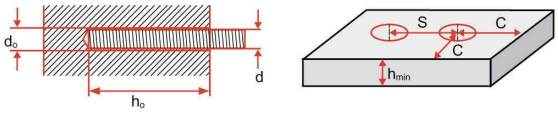
Glass-Transition Temperature (TG):
+60℃ (According to DIN EN ISO 6721-2)

Mechanical / Physical Properties

Compressive Strength	~ 50 N/mm^2 (7days, +20°C)	(According to ASTM D695)
Flexural Strength	~ 9.5 N/mm^2 (7days, +20°C)	(According to ASTM D790)
Tensile Strength	~ 28 N/mm^2 (7days, +20°C)	(According to ASTM D638)
E-Modulus	Compressive: ~ 3'500 N/mm^2	(According to ASTM D695)

Design

Terminology and Abbreviations:



h_{ef} = effective anchorage depth [mm]
f_{cm} = concrete compressive strength [N/mm^2]
S = distance between anchors [mm]
S_{cr} = Minimum anchor spacing to achieve N_{RK} [mm]
C = distance of anchor from free edge [mm]
C_{cr} = Minimum close edge distance to achieve N_{RK} [mm]
h_O = Hole depth [mm]
d_O = Drilled hole diameter [mm]
d = Stud or bar nominal diameter [mm]

N_{RK} = Characteristic tensile load [kN]
V_{RK} = Characteristic shear load [kN]
N_{rec} = Recommended load (tension or shear)= N_{RK} / V_{RK} multiplied with a total safety factor according to local norms [kN]

Rf_{cN} = Close edge reduction factor, tension only
Rf_{cV} = Close edge reduction factor, shear only
Rf_s = Close spacing reduction factor, tension and shear

Load capacity Data for all Thread Rods:

Thread rod d	Hole diameter d_O [mm]	Hole depth h_O [mm]	Required close edge distance to achieve N_{rec} C_{cr} [mm]	Required anchor spacing distance to achieve N_{rec} S_{cr} [mm]	Min. thickness of concrete member h_{min} [mm]	Characteristic load in concrete C 20 / 25 N_{RK} [kN]	Recommended load in concrete C 20 / 25 N_{rec} [kN]
M 8	10	80	120	80	110	25.6	8.5
M 10	12	90	135	90	120	31.5	10.5
M 12	14	110	165	110	140	43.3	14.4
M 16	18	125	190	125	165	49.7	16.6
M 20	24	170	255	170	220	86.6	28.9
M 24	26	210	315	210	270	94.0	31.3

Important Note:
The load capacity of the threaded rod by itself must be verified.
The anchor hole must be dry.

Load Capacity Data for Reinforcing Bar Anchors:

Requirements for the calculation of the characteristic load capacity:

Reinforcing bar S500 ribbed
(the load capacity of the reinforcing bar itself must also be verified)

Min. concrete C20 / 25

The anchor hole must be dry

Bar diameter d (mm)	6	8	10	12	14	16	20	25
Hole diameter d_O (mm)	8	10	12	14	18	20	25	32
Minimum anchorembedment h_{min} (mm)	60	80	90	100	115	130	140	150

Equation for tensile load capacity: $N_{RK} = \frac{h_{ef} - 50}{2,5}$

Equation for shear load capacity: $V_{RK} = \frac{h_{ef} * d_O * f_{cm} * 0,5}{1000}$

Reduction Factors for Close Edge Distances and Anchor Spacing:

Reduced anchor spacing Rf_s tension and shear	Close edge distances Rf_c	
	tension	shear
Area of validity $0.25 \leq (s / h_{ef}) \leq 1$	Area of validity $0.5 \leq (c / h_{ef}) \leq 1.5$	
$Rf_s = 0.4 + \left[0.6 \times \frac{s}{h_{ef}} \right]$	$Rf_{cN} = 0.4 + \left[0.4 \times \frac{c}{h_{ef}} \right]$	$Rf_{cV} = 0.25 + \left[0.5 \times \frac{c}{h_{ef}} \right]$

Important Note:
The load capacity of the thread rod itself must also be verified.
The anchor hole must be dry.

Resistance

Thermal Resistance

Temperature resistance of the cured adhesive:
+50℃ long term, +80℃ short term (1 - 2 hours)

System Information

Application Details

Consumption / Dosage

Material consumption per anchor in ml

Anchor Ø mm	Drill Ø mm	Drill hole depth in mm																	
		80	90	110	120	130	140	160	170	180	200	210	220	240	260	280	300	350	400
8	10	3	4	4	5	5	5	6	6	7	7	7	8	8	9	9	10	11	12
10	12	4	5	5	6	6	6	7	8	8	8	8	9	10	10	11	12	14	15
12	14	5	6	6	6	7	7	8	8	9	10	10	11	11	12	13	14	16	18
14	18	9	10	11	14	14	15	18	19	20	22	23	24	26	28	30	32	37	42
16	18	9	10	11	13	14	15	17	18	19	21	22	23	26	28	30	32	36	40
	20	10	12	12	15	16	17	20	21	22	24	25	26	29	31	33	35	40	46
20	24	12	13	14	15	16	18	22	24	26	28	30	32	36	38	42	48	58	66
	25	18	19	21	23	24	26	30	31	32	36	38	40	44	46	50	54	64	72
24	26	24	25	28	30	33	35	40	43	45	50	55	58	60	65	70	75	100	125

The indicated filling quantities are calculated without wastage. Wastage 10 - 50%.

The filled quantity can be monitored during injection with the help of the scale on the catridge label.

Substrate Quality

Mortar and concrete must be at the required strength. No need to be 28 days old.
Substrate strength (concrete, masonry, natural stone) must be verified.
Pull-out tests must be carried out if the substrate strength is unknown.
The anchor hole must always be clean, dry, free from oil and grease etc..
Loose particles must be removed from the holes.

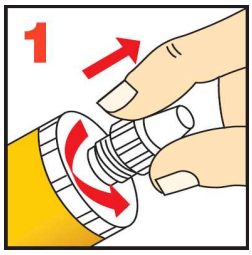
Threaded rods and rebars have to be cleaned thoroughly from any oil, grease or any other substances and particles such as dirt etc.

Application Conditions / Limitations

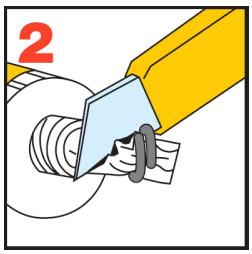
Substrate Temperature	-10℃ min. / +40℃ max. Sika AnchorFix®-1 must be at a temperature of +5℃ to +40℃ for ap plication.
Ambient Temperature	-10℃ min. / +40℃ max. Sika AnchorFix®-1 must be at a temperature of +5℃ to +40℃ for ap plication.

Application Instructions

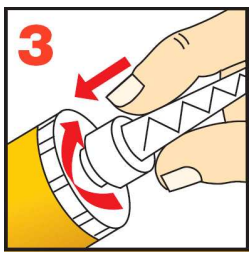
Mixing	Part A : part B = 10 : 1 by volume
Mixing Tools	*Getting the cartridge ready:*



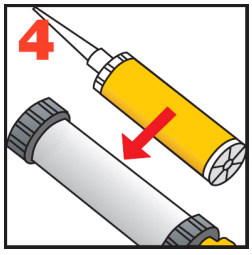
Unscrew and remove the cap



Cut the film



Screw on the static mixer



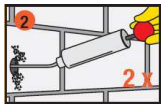
Place the cartridge into the gun and start application

When the work is interrupted the static mixer can remain on the cartridge after the gun pressure has been relieved. If the resin has hardened in the nozzle when work is resumed, a new nozzle must be attached.

Application Method / Tools

Anchors in solid masonry/concrete:

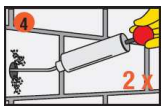
Drilling of hole with an electric drill to the diameter and depth required. Drill hole diameter must be in accordance with anchor size.



The drill hole must be cleaned with a blow pump or by compressed air, starting from the bottom of the hole. (at least 2x)

Important: use oil-free compressors!

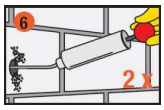
The drill hole must be thoroughly cleaned with the special steel brush (brush at least 2x). The diameter of the brush must be larger than the diameter of the drill hole.



The drill hole must be cleaned with a blow pump or by compressed air, starting from the bottom of the hole. (at least 2x)

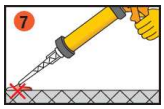
Important: use oil-free compressors!

The drill hole must be thoroughly cleaned with the special steel brush (brush at least 2x). The diameter of the brush must be larger than the diameter of the drill hole.

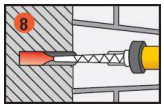


The drill hole must be cleaned with a blow pump or by compressed air, starting from the bottom of the hole. (at least 2x)

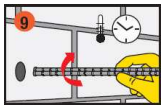
Important: use oil-free compressors!



Pump approx. twice until both parts come out uniformly. Do not use this material. Release the gun pressure and clean the cartridge opening with a cloth.

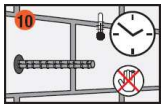


Inject the adhesive into the hole, starting from the bottom, while slowly drawing back the static mixer. In any case avoid entrapping air. For deep holes extension tubing can be used.



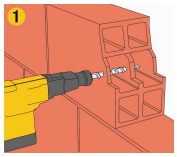
Insert the anchor with a rotary motion into the filled drill hole. Some adhesive must come out of the hole.

Important: the anchor must be placed within the open time.



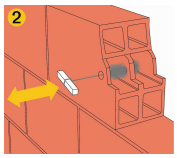
During the resin hardening time the anchor must not be moved or loaded. Wash tools immediately with Sika® Thinner C.
Wash hands and skin thoroughly with warm soap water.

Anchors in hollow blocks:

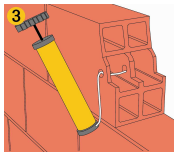


Drilling of hole with an electric drill to the diameter and depth required. Drill hole diameter must be in accordance with anchor- and perforated sleeve size.

Note: with hollow material do not use rotary hammer drills.

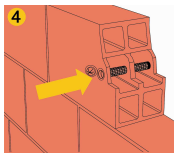


The drill hole must be thoroughly cleaned with a round brush (brush at least 1x). The diameter of the brush must be larger than the diameter of the drill hole.

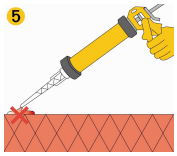


The drill hole must be cleaned after each cleaning step with a blow pump or by compressed air, starting from the bottom of the hole (pump at least 1x).

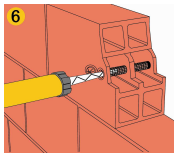
Important: use oil-free compressors!



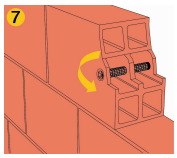
Insert perforated sleeve completely into the drill hole.



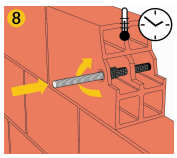
Pump approx. twice until both parts come out uniformly. Do not use this material. Release the gun pressure and clean the cartridge opening with a cloth.



Inject the adhesive into the perforated sleeve, starting from the bottom, while slowly drawing back the static mixer. In any case avoid entrapping air.

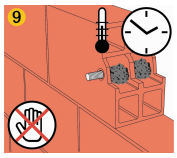


Close the cap from the perforated sleeve to avoid some escape of the resin during entering the steel rod.



Insert the anchor with a rotary motion into the filled perforated sleeve. Use the adequate steel rod size.

Important: the anchor must be placed within the open time.



During the resin hardening time the anchor must not be moved or loaded. Wash tools immediately with Sika® Thinner C.
Wash hands and skin thoroughly with warm soap water.

Cleaning of Tools	Clean and tools and application equipment with Sika® Thinner C immediately after use. Hardened / cured material can only be mechanically removed.

Construction

Value Base

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.

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.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

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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