



## KÖSTER Injection Gel G4

Technical Data Sheet IN 290

Issued: 2020-12-22

- DIBt (German Institute for building technology) - general test certificate abZ Number: Z-101.29-28 "KÖSTER Injection Gel G4 for curtain injection"
- Hygienic institute Gelsenkirchen: Drinking water certification according to the coating guideline of the German Federal Environmental Agency
- MFPA Leipzig: Test report PB 5.1/15-500-1 for non-toxic ground water interaction
- MFPA Leipzig: Test report PB 5.1/15-500-2 "Determining identifying characteristics of an acrylic based injection gel"
- MFPA Leipzig: Test report PB 3.1/16-134-1 "Determining the flammability (Fire Class B2) according to DIN 4102-1"
- RWTH Aachen (ibac): M 2148; corrosion testing of steel reinforcement in contact with an acrylic gel
- Institute IMS RD, Belgrade: Test report UIV 001/17 Leak test for Gel body up to 7 bar
- IGH Institute Gradivine Hrvatska (Institute of Construction Technology Croatia); Resistance to salt water storage: Test certificate IGH No. 72530-PS / 050/17 according to EN 14498: 2004, regime A of January 19th 2018

## Low viscosity acrylic gel for curtain injection and injection into masonry

	<b>KÖSTER BAUCHEMIE AG</b> Dieselstraße 1-10, 26607 Aurich 18 <b>IN 290</b> <b>EN 1504-5:2004</b> <b>Concrete injection for the elastic filling of cracks, voids, and defects</b> <b>U(D2)-W(1)-(1/2/3/4)-(5/30)</b>
Adhesion capacity Elongation capacity Water tightness Glass transition temperature Injectability into dry medium Injectability into non-dry medium Durability  Corrosion behaviour Dangerous substances	> 1,0 MPa > 10 % D2 NPd Injectability class: 0,1 Injectability class: 0,1 No failure during compressive tests No corrosive effect NPd

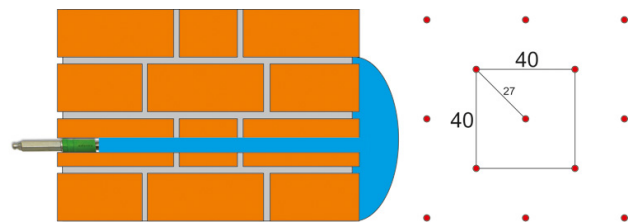
double amount using local tap water (see section for mixing).

### Mixing

The A2 component is filled into the A1 component canister. Afterwards both components are thoroughly mixed through shaking / seesawing the canister (mixing time is 3 minutes). The B component is filled into the additional green canister and afterwards filled with clean water up to the level of the upper mark (28,5 cm filling height). Both components are thoroughly mixed through shaking / seesawing the canister (mixing time is 3 minutes). The ready mixed components have a pot life of 24 hours.

### Curtain Injection

The construction element to be waterproofed is drilled in a certain pattern, shown in the illustration below. The typical spacing is 40 cm in a square shape with a central drill hole in the middle. The use of 10-18 mm packers, e.g. KÖSTER Superpackers, is recommended. In the case of perforated bricks the use of KÖSTER Injection Lances is recommended. Due to their length KÖSTER Injection lances release the material to the outside of the wall, so that voids within the construction element are not filled. The injection is typically done in a multiple step application, where the amount of material is split up according to the application parameters. For a detailed application guideline, please contact KÖSTER's technical support team.



### Features

Water based, elastic acrylic gel with a very low starting viscosity after initial mixing. It is capable to bind water during the gelation. The swelling ability after full curing allows a 40% intake of additional water into the gel structure. Due to the low starting viscosity it can be injected into fine substrate pores.

### Technical Data

Solubility in water	soluble
Mix Viscosity	4 mPa.s / + 20 °C
Application Temperature	> + 5 °C
Reaction Start	4 Minutes / + 20 °C
Network-building-time	6 Minutes / + 20 °C
Final Curing	15 Minutes / + 20 °C

### Fields of Application

For waterproofing below ground construction elements on the outside by curtain injection. For injection into full brick masonry in order to seal the mortar joints against water ingress. Can be applied in special waterproofing, like tunnels, shafts, void and concrete injections, as well as for soil stabilization.

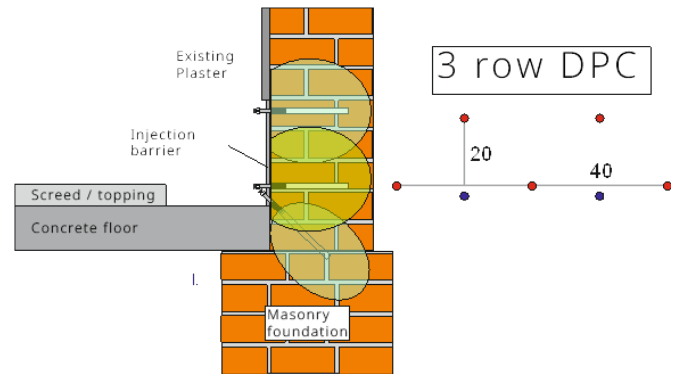
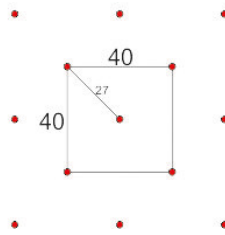
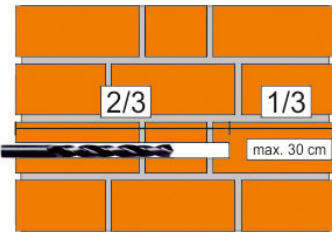
### Application

The material is injected using a 2-component-injection pump with an integrated water flush, e. g. the KÖSTER Acrylic Gel Pump. Before application the delivered concentrate needs to be diluted to approx. the

### Injection into masonry

The construction element to be waterproofed is horizontally drilled up to 2/3 of its thickness (in case of thicker walls a min. of 30 cm to the end is not drilled) using a square pattern with a typical spacing of 40 cm with a centered drill hole in the middle. Subsequently, an injection barrier is applied using KÖSTER Injection Barrier to prevent the loss of injection material. The boreholes are equipped with packers suitable for high pressure injection, e.g. KÖSTER Superpackers. The injection is typically done in a multiple step application until the wall is saturated. Defects in the insulation are immediately repaired using KÖSTER KB Fix 1.

The information contained in this technical data sheet is based on the results of our research and on our practical experience in the field. All given test data are average values which have been obtained under defined conditions. The proper and thereby effective and successful application of our products is not subject to our control. The installer is responsible for the correct application under consideration of the specific conditions of the construction site and for the final results of the construction process. This may require adjustments to the recommendations given here for standard cases. Specifications made by our employees or representatives which exceed the specifications contained in this technical guideline require written confirmation. The valid standards for testing and installation, technical guidelines, and acknowledged rules of technology have to be adhered to at all times. The warranty can and is therefore only applied to the quality of our products within the scope of our terms and conditions, not however, for their effective and successful application. This guideline has been technically revised; all previous versions are invalid.

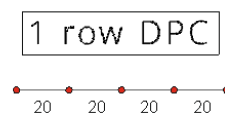
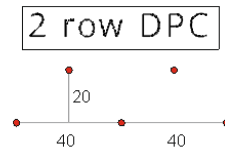
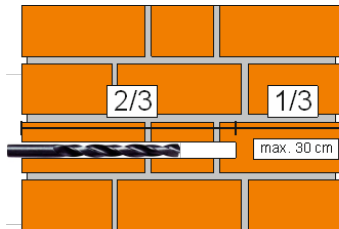


### Horizontal Barrier (DPC)

A horizontal barrier is a special case in masonry injection. An injected horizontal barrier effectively obstructs the capillaries and with careful execution stops moisture from wicking through the structure. The wall to be treated is drilled with two staggered horizontal rows with a drill hole depth of 2/3 of the wall thickness (see drawing below), but with large wall thicknesses that at most 30 cm of the wall remains un-drilled. For this KÖSTER Superpackers are recommended. If necessary, an injection barrier is applied 20 cm above and below the horizontal barrier. The calculated injection quantity is injected evenly in 3 stages. It can be used at moisture contents up to 95% and with high salt concentrations.

### Special case single row horizontal barrier

In some cases, a single-row arrangement of the drill holes is desired. In this case, the two rows are joined together in one line. The packer spacing decreases and the horizontal barrier thereby has a strong overlap of the injection areas around each packer. In this case the packers should be spaced every 20 cm. The injection quantity is calculated accordingly and evenly injected in 3 stages.



### Special case diagonal boreholes

Diagonal boreholes can be planned when the existing plaster is used as an injection barrier. The wall should be at least 24 cm thick, (wall thicknesses below this should not be injected) and where the masonry joint network is not apparent. As a result the horizontal masonry joints cannot be identified. A horizontal drilling would make no sense, as the rule "At least one horizontal masonry joint must be crossed by the drill hole" is not met. In this case diagonally inclined drill holes make sense. In some cases, a horizontal barrier should reach the bottom of the wall, (see drawing). Then The grid is planned in three rows, with the 45° holes in the same level as the upper packer row. The drill hole length for the inclined drill holes is increased by 40%. The amount of material is 50% higher than that determined through the Standard calculation.

### Consumption

Depends on the field of application.

The consumption stated in this technical datasheet always refers to the ready mixed and already diluted product. Minimum Consumption (reference values):

### Curtain Injection:

min. 40 kg / m<sup>2</sup> (standard 50 kg / m<sup>2</sup>)

### Injection into masonry:

4 kg / m<sup>2</sup> for every 10 cm of the brickwall thickness

### Horizontal Barrier (DPC)

Approx. 2.4 kg / m for every 10 cm of the brickwall thickness

### Cleaning

Clean the pump immediately after use with clean water.

### Packaging

IN 290 021

Component A1: 20 kg; Component A2: 1 kg; Component B: 0.4 kg

### Storage

Store the material in a cool and frost free environment. In originally sealed containers the material can be stored for a minimum of 12 months. Protect the material from direct sunlight.

### Safety

Wear protective clothing, gloves and goggles during processing and application of the material. During the application of the material pressure builds up. Do not stand directly behind the packers. In case of skin contact, wash off the material immediately with lots of soap and water. In case of eye contact, flush eyes immediately and thoroughly with water or preferably an emergency eye wash bottle. Consult a doctor. Observe all governmental, state, and local safety guidelines when processing the material.

### Related products

KÖSTER KB-Fix 1	Prod. code C 511 015
KÖSTER KB-Fix 5	Prod. code C 515 015
KÖSTER Mortar Boost	Prod. code C 791 010
KÖSTER PUR Gel	Prod. code IN 285
KÖSTER Injection Gel G4	Prod. code IN 290
KÖSTER Injection Gel S4	Prod. code IN 294
KÖSTER Injection Barrier	Prod. code IN 501 025
KÖSTER Lamella Impact Packer Adapter	Prod. code IN 908 001

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KÖSTER Lamella Impact Packer	Prod. code IN 909 001
KÖSTER Drive in aid for Lamella Packer	Prod. code IN 911 001
KÖSTER Superpacker 10 mm x 85 mm	Prod. code IN 912 001
CH	
KÖSTER Superpacker 10 mm x 115 mm	Prod. code IN 913 001
CH	
KÖSTER Superpacker 13 mm x 85 mm	Prod. code IN 914 001
CH	
KÖSTER Superpacker 13 mm x 115 mm	Prod. code IN 915 001
CH	
KÖSTER Superpacker 13 mm x 85 mm	Prod. code IN 916 001
PH	
KÖSTER Superpacker 13 mm x 115 mm	Prod. code IN 917 001
PH	
KÖSTER Injection Lance	Prod. code IN 924 001
KÖSTER PUR Gel Pump	Prod. code IN 928 001
KÖSTER Water Hose for KÖSTER PUR Gel Pump	Prod. code IN 928 002
KÖSTER Gel Hose for KÖSTER PUR Gel Pump	Prod. code IN 928 003
KÖSTER Manometer for KÖSTER PUR Gel Pump	Prod. code IN 928 004
KÖSTER Mix head for KÖSTER PUR Gel Pump	Prod. code IN 928 005
KÖSTER Injection Whip for Gel Pumps	Prod. code IN 928 006
KÖSTER Slide Coupling for pan-head fitting	Prod. code IN 928 007
KÖSTER Swivel Joint	Prod. code IN 928 008
KÖSTER Acrylic Gel Pump	Prod. code IN 930 001
KÖSTER Material Hose	Prod. code IN 930 002
KÖSTER Gel Packer (Base)	Prod. code IN 931 001
KÖSTER Gel Packer (End piece)	Prod. code IN 932 001
KÖSTER Gel Packer extension pipe 800 mm	Prod. code IN 933 001
KÖSTER Drive-in Aid for Gel Packers	Prod. code IN 935 001
KÖSTER Cutting Device for Gel Packers	Prod. code IN 936 001
KÖSTER Grip Head	Prod. code IN 953 005
KÖSTER KD 2 Blitz Powder	Prod. code W 512
KÖSTER Repair Mortar	Prod. code W 530 025
KÖSTER Waterstop	Prod. code W 540 015

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