

Method Statement

Horizontal barriers by pressureless injection with KÖSTER Crisin Cream



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1 General information

1.1 Scope

This method statement is intended for use by developers, contractors and applicators as a general guideline for the application of the horizontal barrier with KÖSTER Crisin Cream.

While this document describes the tools, equipment, materials and step by step process for preparing and installing the waterproofing system, it must be used and referred to, in combination with all other relevant technical information available for the product and its components.

1.2 Manufacturer

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KÖSTER
Waterproofing Systems

1.3 Definitions

Moisture content

Refers to the amount of water that is contained in the pores (voids) of a material. It is usually expressed as the percentage by mass of the water present relative to the material's dry weight.

Rising damp

In buildings may be defined as the upwards flow of moisture through a permeable wall structure, the moisture being derived from groundwater. The moisture rises through the pores (capillaries) in the masonry by a process loosely termed "capillary action", which causes the masonry to act like a wick.

Capillary action

Capillary action is important for moving water (and all of the things that are dissolved in it) around. It is defined as the movement of water within the spaces of a porous material due to the forces of adhesion, cohesion, and surface tension.

Hydrophobizing effect

Is the observed tendency of nonpolar substances to aggregate in an aqueous solution and exclude water molecules. The word hydrophobic literally means

"water-fearing", and it describes the segregation of water and nonpolar substances, which maximizes hydrogen bonding between molecules of water and minimizes the area of contact between water and nonpolar molecules. Moisture contact angle measurements will classify a surface as hydrophobic when the contact angle of the water droplet exceeds 90 degrees.

Salt efflorescence

Is just a deposit of salts, usually whitish in colour, formed on the surface of concrete/masonry. It is derived from compounds dissolved within the concrete/masonry, transported to the surface and deposited upon evaporation. When precipitation occurs directly on the surface, it is termed efflorescence.

Negative Side Waterproofing

Negative side waterproofing means that the waterproofing layer is applied to the side of the construction member which is opposite to the side with direct contact to the water.

2 System description

2.1 System features

KÖSTER Crisin Cream is a hydrophobic injection cream, solvent-free based on resin/silane against rising damp (wicking moisture). KÖSTER Crisin Cream is resistant to any moisture/salt content. KÖSTER Crisin Cream is a retroactive DPC (Damp Proof Course) waterproofing against capillary rising moisture. It can be applied from

inside and/or from the outside of the building, and can be used with all mineral building materials except porous concrete. It can be applied in cases of high degrees of moisture penetration (95% ±5 % saturation) and with all degrees of salt contamination.

2.2 Characteristics/Advantages

- Easy installation, horizontal drilling
- Easy processing
- Can be applied with simple cartridge presses (handguns) or hand pressure sprayers
- Safe use
- Suitable even in cases of high moisture contents until +95 % ±5 %
- Suitable even in cases of high salt content
- Tested according to WTA
- For all common, capillary-active building materials
- High, concentrated active ingredient content
- High yield
- High penetration
- Solvent free
- High stability
- Does not form salts harmful to the building
- Sustainable hydrophobizing effect against capillary action

2.3 Main products and components



KÖSTER Crisin Cream

Injection cream based on resin/silane against rising damp (wicking moisture). KÖSTER Crisin Cream is resistant to any moisture/salt content.

[See online](#)



KÖSTER KB-Fix 5

Waterproof, weatherproof, fast-curing mortar with high compressive strength (sets after approx. 5 minutes) for fast installations as well as for small repairs of masonry and concrete. Free of soda and chlorides.

[See online](#)



KÖSTER Special Caulking Gun without extensions

Caulking gun for tubular bags (e. g. KÖSTER Crisin Cream).

[See online](#)

2.4 Associated products



KÖSTER Repair Mortar Plus

[See online](#)



KÖSTER NB 1 Grey

[See online](#)



KÖSTER Restoration Plaster Key

[See online](#)



KÖSTER Restoration Plaster Grey

[See online](#)



KÖSTER Restoration Plaster White

[See online](#)



KÖSTER Restoration Plaster White/Fast

[See online](#)



KÖSTER Restoration Plaster White/Light

[See online](#)



KÖSTER Fine Plaster

[See online](#)



KÖSTER Renovation Paint White

[See online](#)



KÖSTER Polysil TG 500

[See online](#)

2.5 Associated literature

- [Technical Data Sheet](#)
- [Laboratory analysis form \(German\)](#)
- [Product Flyer KÖSTER Crisin Cream](#)

2.6 KÖSTER Crisin Cream compared to common creams



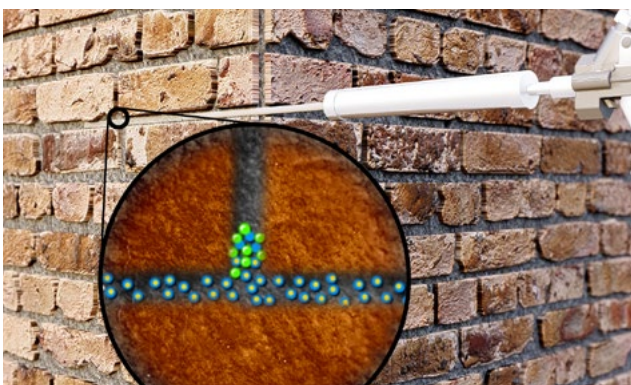
Standard cream:
Oil-in-water emulsion

KÖSTER Crisin Cream has the special feature that it is a water-in-oil emulsion. That means, that very fine water droplets are coated by an oil-like liquid. Thanks to this



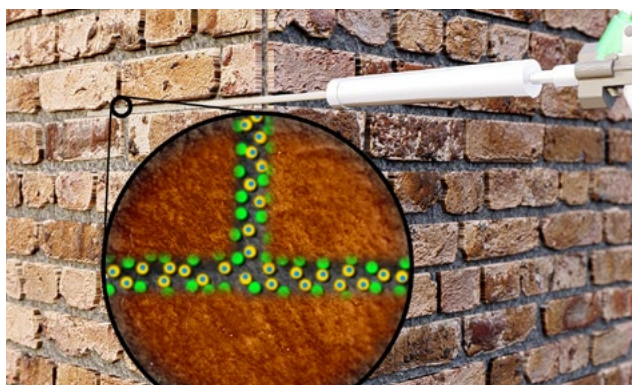
KÖSTER Crisin Cream:
Water-in-oil emulsion

property, water can be displaced from building surfaces, and the creep and penetration properties are much stronger than that of a water-based cream.



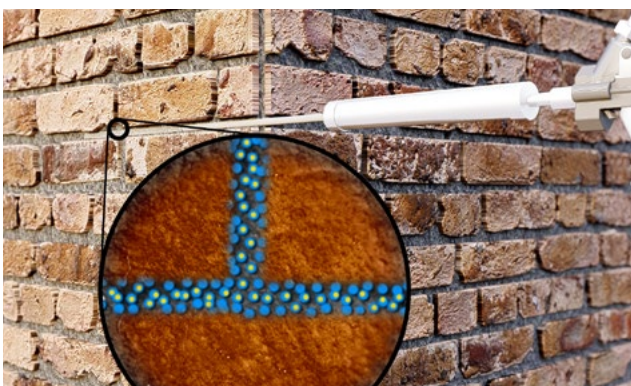
Standard cream:
Clumping of active ingredients at high salt levels

Another advantage is that salts in the masonry do not dissolve in an oil-like liquid. This makes the product very stable when exposed to salt. Quite the opposite is the



KÖSTER Crisin Cream:
No clumping of active ingredients at high salt levels

behavior of oil-in-water emulsions, which usually break when exposed to salt and therefore and thus clump together.



Standard cream:
Mixing of the active ingredients with pore water in damp masonry and dilution of the concentration of the active ingredient and uncontrolled distribution of the active substances in the masonry.



KÖSTER Crisin Cream:
No mixing of the active ingredients with water due to the reversed formulation. Water is gradually displaced, the active ingredients remain in the desired position.



KÖSTER Crisin Cream is stable. For the application from cartridges and foil bags, this is a processing advantage: Even if too much material is applied into a drill hole, there will not be “noses” on the plaster which subsequently

lead to dark spots. The excess material can be removed and the borehole can be sealed first with KÖSTER KB-Fix 5 and plastered afterwards.

3 Tools and Equipment

3.1 Tools



KÖSTER Cutting Device



KÖSTER Spatula
(20 mm or 50 mm)



KÖSTER Extension for 600 ml Crisin Cream foilbag



KÖSTER Protimeter



14 mm drill bit for SDS Plus Chuck (masonry)



KÖSTER Drill Hole Cleaner



Measuring tool

3.2 Equipment



KÖSTER KÖSTER Special
Caulking Gun without
extensions (for 600 ml
tubular bag)



Driller



KÖSTER Diagnosis Case

3.3 Cleaning

Clean tools immediately after use with water.

4 Environmental, health and safety

4.1 Personal Protection Equipment (PPE)

The following is a short overview of Personal Protective Equipment and serves only as a guideline. Contractors and Employers are responsible for meeting the occu-

pational safety guidelines in their countries, states, and localities.



Eye protection

Employers must be sure that their employees wear appropriate eye and face protection and that the selected form of protection is appropriate to the work being performed and properly fits each worker exposed to the hazard.

Head protection

Employers must ensure that their employees wear head protection if any of the following apply: Objects might fall from above and strike them on the head; they might bump their heads against fixed objects, such as exposed pipes or beams; or there is a possibility of accidental head contact with electrical hazards.

Foot and Leg Protection

Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials should wear protective footwear.

Hand Protection

When selecting gloves to protect against exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions. Gloves commonly used are: Coated fabric gloves and Chemical - and Liquid - Resistant Gloves

Hearing protection

Suitable hearing protection must be provided for the job environment.

4.2 Material safety & First Aid

Every KÖSTER product is labeled with specific information and symbols as to the related dangers. Please consult the respective Material Safety Data Sheet for specifics.

If inhaled:

Provide fresh air

After ingestion:

Rinse mouth immediately and drink plenty of water.
Caution if victim vomit: Risk of aspiration. Do NOT induce vomiting. Medical treatment necessary.

In case of contact with eyes:

Rinse immediately carefully and thoroughly with eye-bath or water. In case of troubles or persistent symptoms, consult an ophthalmologist.

After contact with skin:

Wash immediately with plenty of water. Change contaminated clothing. Medical treatment necessary.

4.3 Waste disposal

Disposal recommendations

Dispose of waste according to applicable legislation.
Delivery to an approved waste disposal company.

Contaminated packaging

non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

5 Fields of application

5.1 Example: Horizontal barriers with pressureless injection system



- | | |
|---|--|
| 1. Waterproofing against rising damp | KÖSTER Crisin Cream |
| 2. Closing holes | KÖSTER KB-Fix 5 |
| 3. Primer | KÖSTER Polysil TG 500 |
| 4. Leveling | KÖSTER Repair Mortar Plus |
| 5. Negative side waterproofing Layers (two coats) | KÖSTER NB 1 Grey |
| 6. Plaster key | KÖSTER Restoration Plaster Key |
| 7. Plaster | KÖSTER Restoration Plaster white/Light |
| | KÖSTER Restoration Plaster Grey/Light |
| | KÖSTER Restoration Plaster white/Light |
| 8. Fine Plaster | KÖSTER Fine Plaster |
| 9. Paint | KÖSTER Renovation Paint White |

Installation process:

Rising (or "wicking") damp is among the most frequently encountered causes of damage in masonry walls. The results are clearly identifiable through the spalling of plaster, damaged joints and bricks. Also, through salt efflorescence and algae growth. Damage from rising moisture can be avoided by the installation of a horizontal barrier.

KÖSTER Crisin Cream is a very thin resin which penetrates into the smallest capillaries in the building material, stops the capillary action permanently and creates a hydrophobizing effect. KÖSTER Crisin Cream can be applied from inside and/or from the outside of the building. It is suitable in cases of high degrees of moisture penetration (95 % ±5 % saturation) and with all degrees of salt contamination.

In cases where damage is caused by rising moisture, the old plaster has to be removed from the wall.

Installation of the horizontal barrier must be applied using KÖSTER Crisin Cream. Boreholes are sealed with KÖSTER KB-Fix 5.

Before further work begins, the surface should be primed with KÖSTER Polysil TG 500, followed by leveling the substrate with KÖSTER Repair Mortar Plus and the area underneath the horizontal barrier must be secured against the moisture trapped under the newly installed horizontal barrier with KÖSTER NB 1 Grey applied in two layers.

After applying KÖSTER NB 1 Grey and allowing a period of at least 1 day for the material to cure. The application of KÖSTER Restoration Plaster Key is required, after 30 to 60 minutes KÖSTER Restoration Plaster can be applied.

The application of KÖSTER Restoration Plaster is required. The KÖSTER Restoration Plaster allows the masonry to dry without damage. KÖSTER Restoration Plasters are open to vapor diffusion and are hydrophobic. Salts remaining in the wall are absorbed by the KÖSTER Restoration Plasters so that salt doesn't effloresce to the surface and doesn't cause damage to the plaster or paint.

KÖSTER Restoration Plasters are available in different varieties (grey, white, fast, and light). KÖSTER Restoration Plaster White is often used in older buildings without subsequent painting. KÖSTER Fine Plaster creates a smooth decorative surface and can be applied when desired to meet architectural goals. KÖSTER Restoration Plasters can only be painted over with breathable (open to vapor diffusion) paint such as KÖSTER Silicone Paint White.

6 Substrate condition

6.1 Project site conditions

6.1.1 Application temperature

The application temperature is between +5 °C and +35 °C.

6.2 Substrate requirements

The substrate (masonry) can be dry or wet.

6.2.1 Salt contamination levels

Salt testing protocols are essential guidelines employed to assess the concentration and composition of salts present within building walls. However, KÖSTER Crisin Cream can be applied irrespective of the type or concentration of salts present.

Salt contamination levels in mass %

Salt type	Low	Medium	High
Sulfate	< 1.0	< 2.0	> 2.0
Nitrate	< .02	< 1.0	> 1.0
Chloride	< .15	< 0.8	> 0.8

6.2.2 Salt analysis

- KÖSTER Diagnosis Case Prod. No. X 919 001
- With this method the effective salt concentration can be analyzed with a rapid test

Chlorides:

Lower test field only slightly discolored—the value can be interpolated accordingly—chlorides in this case approx. 200 mg/l

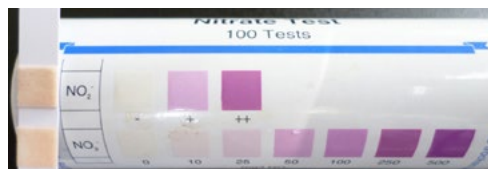
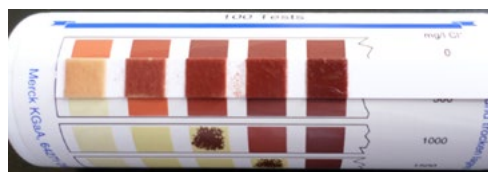
Sulfates:

Test fields display virtually no discoloration—sulfate content in this case <200 mg/l (Gypsum residues result in an immediate yellow coloration of all test fields)

Nitrates:

All test fields are without discoloration—no damaging salt

After determining the salt content, the result is converted into mass-percent.



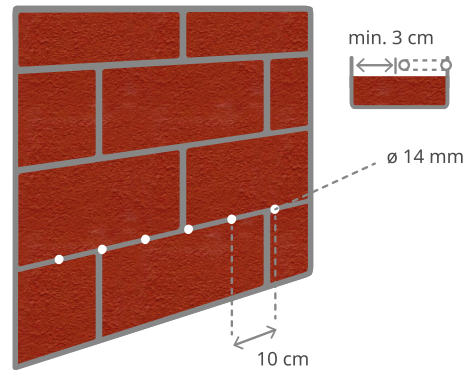
7 Application/Installation instructions

The application of KÖSTER Crisin Cream is carried out by applying a horizontal barrier with pressureless injection system.

7.1 Installation of the horizontal barrier

The holes have a diameter of 14 mm and are drilled horizontally into the lowest bearing joint up to 3 cm before the end of the masonry and cleaned by flushing water or using KÖSTER Drill Hole Cleaner.

The Distance between the drill holes is always 10 cm regardless the wall thickness.



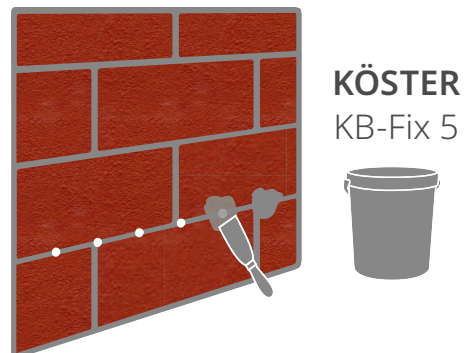
Subsequently, KÖSTER Crisin Cream is injected from the KÖSTER Special Caulking Gun (600 ml foil bag).

When injecting the material, it must be ensured that the drilled hole is filled evenly and without voids from the back to the front. For larger construction sites, the use of a rechargeable cartridge press with an 18 Volt/5 Ah rechargeable battery is recommended.



Immediately afterwards, the drill holes can be sealed using KÖSTER KB-Fix 5.

Before further work begins, such as the application of a KÖSTER Restoration Plaster. The wall should be first primed with KÖSTER Polysil TG 500, followed by leveling the uneven surface with KÖSTER Repair Mortar Plus, and the area underneath the horizontal barrier must be secured against the moisture trapped under the newly installed horizontal barrier with KÖSTER NB 1 Grey applied in two layers.



8 Consumption rates

Approx. 150 ml per 100 cm drill hole

- Wall thickness 12 cm: approx. 140 ml/m (600 ml for 4.3 m)
- Wall thickness 24 cm: approx. 330 ml/m (600 ml for 1.8 m)
- Wall thickness 36 cm: approx. 510 ml/m (600 ml for 1.2 m)
- Wall thickness 48 cm: approx. 700 ml/m (600 ml for 0.8 m)
- 5% additional consumption must be taken into account

9 General notes

9.1 Material storage

Store at room temperature, (approx. +20 °C). In originally sealed packages the material can be stored for a minimum of 12 months. Store in a cool place. Protect packaging from sunlight.

9.2 Packaging



600 ml foil bag (M 278 600)

9.3 Important considerations

The drill hole spacing is always 10 cm, regardless of the wall thickness.

9.4 Limitations

Do not apply in temperatures below 0 °C, apply only as long as the masonry is not frozen. KÖSTER Crisin Cream can be applied in wall thickness up to 48 cm.

10 Certifications

Official test report, MFPA, Leipzig according to WTA Technical Leaflet 4-4-04, Moisture Content 95 %.

11 Legal disclaimer

This method statement reflects general cases with standard parameters. It is not suitable as a step-by-step guide for all and each waterproofing project as the conditions on site at the moment of the application cannot be foreseen. It is solely the applicator's responsibility to

decide on the actual procedure considering the specific situation on the construction site. In any case, KÖSTER's Terms of business are valid and can be viewed under www.koester.eu 