Technical Data Sheet
Art. No. 1810

Kiesol

Deep protection silicification for waterproofing and refurbishing old and new buildings in the Kiesol System according to WTA Code of Practice 4-4-04/D Injecting Masonry Work against Capillary Moisture
Numerous expert opinions, test certificates, factory production controls and external supervision. Proved in practice for more than 50 years.

Water based


For use indoors and outdoors


Brush, borehole / pressure / low pressure impregnation

Application rate depending on application

Shelf-life


Store frost-free and cool, protected from moisture in closed containers

Range of use

- Kiesol is a liquid combination product made of water repelling silicic acid compounds
- Water repelling, capillary narrowing, deep protection for waterproofing damp masonry work
- Protection against capillary rising damp through injection with Kiesol in a borehole procedure
- Diffusion open barrier zone (deep protection) against the effect of moisture from behind
- Improved adhesion by priming, diluted 1:1 with water
- Strengthens the substrate and increases chemical resistance through silicification
- Faster working operations through silicification treatments with waterproofing grouts (system waterproofing in one day)
- As a solvent-free, highly concentrated system component, Kiesol is environment-friendly and is thus also suitable for indoor applications
- Suppresses capillary water absorption according to WTA, tested up to a degree of 80%

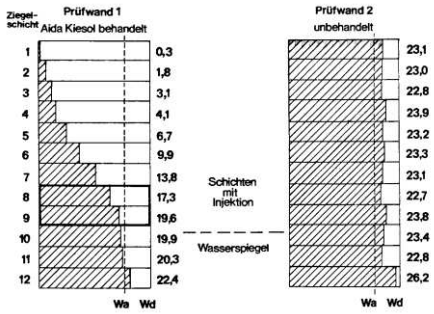
Characteristic data of the product

Kiesol in the packaged state:

Density according to DIN 51757:	approx. 1.15 g/cm³
pH value:	approx. 11
After hardening	
Water vapour permeability:	> 90%
Water repellency:	w: ≤ 0.5 kg/m² x $h^{0.5}$
Strengthening:	up to 5 N/mm²

moisture penetration by injecting under gravity

The following diagram showing the distribution of moisture was taken from the test report issued by the Bundesanstalt für Materialprüfung [Federal Materials Testing Agency]. The effect Kiesol has in regard to drying damp masonry can be clearly seen on the left Test Wall 1.



I. Refurbishment of old buildings

System products:
Kiesol, a capillary narrowing, waterproofing agent that provides deep protection, is used for horizontal waterproofing and for priming beneath waterproofing grouts when waterproofing surfaces. Remmers Injection Mortar is used for filling hollow spaces / Remmers Waterproofing Filler for sealing coves and joints / Remmers Sulfatex Grout and Sulfatex Grout Rapid for water pressure tight surface waterproofing / Remmers Rapid Hardener for leaking areas with running water / Remmers Injection Resin PUR for filling

cracks / Remmers Sulfatex Liquid for priming when sulphates are present / Remmers Preparatory Mortar, Undercoat Render and Restoration Renders as moisture-regulating render systems.

Range of use:

- Deep protection silicification by injecting masonry work against "capillary rising damp" in ground floors and basements (borehole procedure). For injection under gravity through feeding devices or injection in a low pressure procedure in combination with Remmers Injection Mortar. Suitable for porous building materials with a degree of moisture penetration of up to 80%. If moisture penetration is > 80%, the series of boreholes should be placed higher or Kiesol should be injected in a low pressure procedure. Masonry work with heavy hygroscopic loads (chlorides, nitrates >3%) should be treated with Remmers Salt Inhibitor.
  The system component (Kiesol), diluted 1:1 with water, is used with Remmers Sulfatex Grout for strip waterproofing as protection against moisture bridges in the borehole area.
- Splash water protection in plinth areas through silicification treatment using Remmers Preparatory Mortar and Remmers Restoration Renders.
- Subsequent basement waterproofing from the inside using a silicification treatment with Kiesol diluted 1:1 with water and Sulfatex Grout against ground damp, non-standing and standing seepage water, water pressure and the effect of water from behind.
- Subsequent basement waterproofing from the outside to prevent the penetration of moisture from behind, applying silicification treatment with Remmers Thick Coatings.

II. Waterproofing new buildings

System products:
Kiesol, for waterproofing with deep substrate protection, is used as a primer for Remmers Thick Coatings and as a primer for Remmers Waterproofing Grouts when waterproofing surfaces / Remmers Waterproofing Grout and Waterproofing Filler for horizontal and plinth waterproofing / Remmers Thick Coating, K2 Thick Coating and Profi Tight as plastic-modified, top quality bitumen thick coatings according to DIN 18195, part 2 for highly reliable, crack-bridging building waterproofing / Remmers DS System Protection, Art. No. 0823 as a drainage and protection element for Remmers thick coatings.

Range of use:

- For horizontal waterproofing against rising ground damp and non-standing seepage water according to the state-of-the-art through silicification treatment using Remmers Waterproofing Grout beneath walls in a bond with the masonry mortar.
- For waterproofing against ground damp on basement slabs beneath swimming screeds with Kiesol and Remmers Elastoplast or Spray-On Waterproofing according to the state-of-the-art or with thick coatings according to DIN 18195.
- For vertical waterproofing against ground damp and non-standing seepage water according to DIN 18195 using Kiesol diluted 1:1 with water + Thick Coating + Remmers DS System Protection.
- For waterproofing against standing seepage water according to DIN 18195 with a primer coat of Kiesol diluted 1:1 with water + Remmers Thick Coating + Remmers Reinforcement Fabric 2.5/100 + DS System Protection.
- For waterproofing basement slabs in a combination construction consisting of water impermeable concrete with horizontal waterproofing as well as wall waterproofing according to DIN 18195 with Kiesol diluted 1:1 with water as a primer + Remmers Thick Coatings, depending on load with or without a layer of fabric + DS Protection System.
- For vertical waterproofing in splash water areas with subsequent coatings, render or thermal insulation using Kiesol and Remmers Waterproofing Grout or Remmers Elasto Grout 1K or 2K.

III. Special applications

System products: As above plus Remmers Sulfatex Grout and Remmers Elasto Grout 2K.

Range of use:

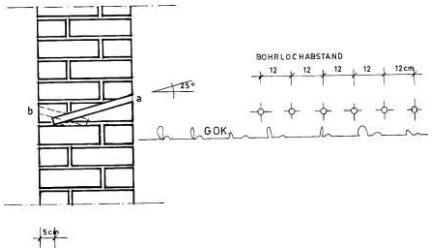
- For improving the surface of concrete (concrete pipes) with Kiesol.
- Mineral strengthening of dusting concrete, screed surfaces and masonry work using Kiesol.
- As crack-bridging protection against diffusion as well as aggressive water (DIN 4030) on concrete using Kiesol and Spray-On Waterproofing 1K.
- For waterproofing reservoirs against water pressure according to the state-of-the-art using Kiesol and Remmers Waterproofing Grout or according to a patent pending with Kiesol, Remmers Sulfatex Grout and Remmers Elasto Grout 2K.

Directions

I. Refurbishment of old buildings:

a) Borehole procedure "Injection of Masonry Work against Capillary Rising Damp" in ground floors and basements:
Remove render and/or coatings at least 80 cm above the moist edge. Chase out damaged mortar joints up to 2 cm deep. Pre-wet dry areas and apply a silicification treatment consisting of Kiesol diluted 1:1 with water and Remmers Sulfatex Grout. Then close open joints with Remmers Waterproofing Filler. To inject masonry work in a borehole procedure against capillary rising damp, drill holes in intervals of 10-12.5 cm with a downward slope of approx. 25°, less for thicker walls and more for narrower walls. Depending on the procedure used, the diameter of the boreholes should be 10 to 30 mm. When drilling the holes, cross at least one horizontal joint, ending approx. 5 cm before the end of the wall.

Illustration of the borehole injection principle:
a: exterior
b: on both sides as of masonry thickness t > 60 cm (borehole depth 2/3 of thickness).



Fill hollow masonry, e.g. double leaf cavity masonry with a loose core filling, narrow cracks, etc., with Remmers Injection Mortar first.
At the earliest after 7 days (the Injection Mortar must have hardened), these boreholes are re-drilled. In the case of extremely hollow masonry work, it is also possible to fill one row of boreholes with Injection Mortar first and then to inject with Kiesol 5 cm higher.
Injection is made under gravity through suitable storage containers, e.g. for narrow walls up to 24 cm thick with an injection cartridge, otherwise with feeding devices, until the surrounding wall area is saturated. When a low pressure procedure is used (approx. 4-8 bar), light pressure injection packers or plastic packers are used:
Injection equipment: Kiesol Surface Sprayer with coupling, Hübner Airless 1301 VP or Desoi Injection Pump DEMb03, Dittman Unipress.
Guide values for impregnation time with Aida Kiesol:

30 sec.	approx. 0.25 kg
1 min.	approx. 0.5 kg
2 min.	approx. 1.0 kg

For further details, read the information provided by the equipment manufacturer.
Supporting measures for masonry work injection:

- One silicification treatment as vertical surface treatment from the floor slab up to approx. 20 cm above the row of boreholes, using Remmers Preparatory Mortar
- Remmers Special Restoration Render

Below the horizontal barrier, separate the render in the floor connection by a joint and, depending on requirements, waterproof the floor surface.

b) Subsequent basement waterproofing from the interior with a silicification treatment using Kiesol diluted 1:1 with water and Remmers Sulfatex Grout:
Preparation of the substrate:
All substrates must be sound, load-bearing and free of substances that could interfere with adhesion and loose or soft materials.
Basement masonry work, interior: Remove old render at least 80 cm above the visible moisture edge. Remove old coatings and clean the entire surface, e.g. by mist blasting (Rotec), also mechanically on small areas. Indentations must be filled and masonry work made of cavity blocks with a very coarse surface texture (e.g. basement building blocks, slag blocks) must always be rendered first (Remmers Undercoat Render or Remmers Waterproofing Filler) and waterproofed after the render has set. Interior waterproofing is executed continuously. For this, separate interior dividing walls from exterior walls approx. the width of a block as far up as the render was removed. In the floor-wall connection, chisel out screed approx. 20 cm wide, or, in the case of leaking basement slabs, remove screed completely.
Partial leaking areas in the masonry work, e.g. floor connection joints, horizontal joints with barrier membrane, are pre-waterproofed using Kiesol and Remmers Rapid Hardener and closed with Remmers Waterproofing Filler.
Fill cracks leading water, construction joints especially in concrete with Remmers Injection Resin PUR or inject through packers.
Pre-wetting the substrate:
Pre-wetting is carried out, depending on the moisture content and absorption capacity of the substrate. Highly absorbent masonry work (e.g. dry sand-lime brick) should be pre-wet several times prior to treating!

The waterproofing should only be applied to matt damp substrates and never to shiny wet substrates.

Directions:
For subsequent surface waterproofing with deep protection, diluted Kiesol is used in combination with Sulfatex Grout, applying as a silicification treatment, wet-on-wet: Spray on Kiesol diluted 1:1 with water, covering the entire matt damp substrate. Spray only enough that it does not run down. After a waiting time of at least 15 minutes, brush on Sulfatex Grout over the entire surface in a

grouting procedure. The grout should be applied in a minimum layer thickness of 1 mm. After this first silicification treatment, wait 20 minutes (depending on substrate) before applying a second coat of grout. For standing seepage water or water pressure, apply three silicification treatments using Sulfatex Grout. The minimum application rate for the grout is 2.0 kg/m² (> 1 mm thick layer) per coat. The total thickness of the layer of grout should not exceed 5 mm at any one place.
Since future water loads may change, we recommend that three silicification treatments are always applied.
Place a sealing cove in the floor-wall connection made of Remmers Repellent Mortar or Remmers Waterproofing Filler. Then throw on Remmers Preparatory Mortar onto the last layer of grout, covering the entire surface. If the spritz is not applied the same day, apply another layer of Sulfatex Grout without using Kiesol and while fresh, throw on Preparatory Mortar. After setting, at the earliest after 3 days, apply render, using Remmers Special Restoration Render Restoration or Fast Restoration Render. Separate the render on the wall from the floor with a joint at least 1 cm wide. Never apply gypsum or lime render.

II. Waterproofing new buildings:
Kiesol is worked in combination with Remmers Waterproofing Grout in silicification treatments, wet-on-wet:
The sequence for waterproofing corresponds to the instructions for working with Sulfatex Grout given above but without a subsequent spritz and render.

Horizontal waterproofing in wall positioning areas:
1 silicification treatment*
+ 1 layer of grout

Protection from the effect of moisture from behind in sealing cove areas:
1 silicification treatment*

In plinth areas:
1 silicification treatment*
+ 1 layer of grout

Mineral waterproofing on floors:
1 silicification treatment*

* Silicification treatment consists of spraying Kiesol diluted 1:1 with water over the surface and then applying a layer of Remmers Waterproofing Grout after a waiting time of at least 15 minutes, wet-on-wet.

Use Remmers Waterproofing Filler for sealing coves.
Kiesol diluted 1:1 with water is also used as a primer for exterior waterproofing against ground damp and standing seepage water.

III Special applications:
See also the Technical Information Sheets for Sulfatex Grout, Repellent Mortar, Waterproofing Filler and Elasto Grout.

Notes

Kiesol is not suitable for impregnating facades. Protect eye glasses, glass, tiles, clinker and similar from splashed material!
Further details on application are found in the latest Technical Data Sheets for the respective system product, the brochure *"Tight & Dry with a System"*, and performance specifications. The guideline for thick coatings and waterproofing grouts, DIN 18195 "Building Waterproofing" and DIN 1045 "Concrete and Reinforced Concrete" also apply.

Packaging, application rate, storage

Packaging:
Refurbishment of old buildings / building waterproofing

Borehole procedure

Wall thickness in cm	Borehole depth (actual) approx. cm	mean application rate per borehole	Material per m (8 boreholes)
25	22	0.4	3.5 kg
38	34	0.6	5.0 kg
51	50	0.8	7.0 kg
64	64	1.2	10.0 kg
77	78	1.4	11.0 kg
90	94	1.6	13.0 kg
103	107	2.0	16.0 kg
120	125	2.2	18.0 kg

Weakly absorbent stone: up to 20% less, highly porous masonry work up to 30% more.

Silicification treatment:
0.1 kg/m² Kiesol and 1.6 kg/m² grout

Waterproofing new buildings:
0.1 to 0.3 kg/m² Kiesol

Special applications:
0.1 to 0.3 kg/m² Kiesol

For application rates in detail, see Bills of Quantities and the latest Technical Data Sheets for the above named system products.

Packaging:
Canisters: 1 kg, 5 kg, 10 kg and 30 kg

Shelf-life:
At least 3 years in closed containers.

Safety, ecology, disposal

Further information on safety when transporting, storing and handling as well as disposal and ecology is found in the latest Safety Data Sheet.

The statements above are compiled from our field of production and according to the latest technological developments and application techniques.

Since application and working are beyond our control, no liability of the producer can be derived from the contents of this information sheet. Any statements made beyond the contents of this information must be confirmed in writing by the producer.

In all cases, our general conditions of sale are valid. With the publication of this Technical Information Sheet all previous editions are no longer valid.

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