

Product Information

Dolit HB

KI.WG.001 | 10/10/2024



CRS
Chemical Resistant Systems

PRODUCT GROUP

Water glass mortars

BINDER BASE

Water glass

PROPERTIES / APPLICATION

2-component mortar mass based on water glass for the production of acid resistant tile coverings and linings. The application can be carried out full or hollow-jointed. In addition to its use in acid applications, Dolit HB is also used in chimneys, wind or flue gas heaters and in light refractory construction due to its very good thermal resistance.

- Temperature resistance
 - Up to 900 °C.
 - The temperature resistance is basically dependent on the individual chemical stress.
- Very good resistance to acids (not to hydrofluoric acid).
- Very good resistance to oxidising media, organic solvents, oils, greases and fuels.
- Very good resistance to aggressive gases and flue gas components.
- Free of halogens

SYSTEM DESIGN

Dolit HB Pre-Coat
Dolit HB Mortar mass

PHYSICAL DATA

Physical property	DIN	ASTM	Value	Unit
Density	DIN EN ISO 1183-1		2.0	g/cm ³
Flexural strength		ASTM C 580	5.5	MPa
Compressive strength		ASTM C 579	22	MPa
Modulus of elasticity		ASTM C 580	6500	MPa
Adhesive strength to ceramic tiles	DIN EN 12004-1		≥ 1.5	MPa
Therm. Coefficient of linear expansion	DIN 51045		12 x 10 ⁻⁶	1/K
Thermal conductivity	DIN EN ISO 22007		1.75	W/mK

The specified values apply to Dolit HB Mortar mass. They contain mean values determined on non-tempered samples.

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PRECONDITIONS

The temperatures for the substrate, ambient air and Dolit materials must be between 10 °C and 30 °C during application. The optimum processing temperature is 20 °C. Higher and lower temperatures affect the working time and consistency of the composition. Consumption and application performance may change as a result.

During application, the substrate must be kept absolutely dry. No moisture (condensate, mist, etc.) may get onto the surfaces to be protected.

Unevenness must already be levelled out in the substrate.

Distance to dew point has to be at least 3 K, at a relative humidity of above 70 % at least 5 K.

The construction site must be protected from draught and direct sunlight.

If tiles laid in a hollow joint are to be jointed with a Dolit mortar material, the bedding joint must be hardened and dry again. The open joint should have a rectangular cross-section, be at least 15 mm deep and 4 - 8 mm wide. The side surfaces of the tiles must be free of mortar material and the joint must be clean.

CONCRETE / SCREED

Refer to DIN EN14879-1.

The substrate must be pretreated to achieve sufficient adhesive tensile strength. It must be free from cement slurry, cement skin, loose and friable parts, structural defects and separating substances.

The residual moisture of cementitious substrates must not exceed 4 %.

The effect of water or water vapour pressure on the back of the coating/lining must be prevented.

All water glass mortars inherently have a certain porosity that allows liquids to penetrate. For this reason, concrete surfaces are to be provided with a liquid barrier layer according to the basic rules of acid proof construction. This surface must be prepared in such a way that the water glass mortar to be applied to it can adhere sufficiently.

STEEL

Refer to DIN EN14879-1.

The steel surface is blasted to near white blast cleaning. A surface cleanliness of Sa 2½ according to DIN EN ISO 12944-4 and the roughness grade "Medium (G)" according to DIN EN ISO 8503-1; minimum surface roughness $R_z = 70 \mu\text{m}$ must be achieved. After blasting, the reformation of rust must be prevented by suitable measures.

DELIVERY FORM / BEST BEFORE DATE

Component	Item no.	Quantity	Package	Months
Dolit-HB-Solution	5221008001	25 kg	Hobbock	24
Dolit-HB-Powder	5221042001	25 kg	Bag	24

- All components must be stored and transported in a dry and frost-free place.
- The minimum shelf life applies to a storage temperature of 20 °C. Higher temperatures shorten, lower temperatures extend the minimum shelf life.

Safety notice

- For handling, storage and transport, observe the relevant safety data sheets!

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GISCODE

Product	GISCODE
Dolit HB Mortar mass	n. s.

MIXING RATIO / CONSUMPTION

PRIMER ON STEEL SURFACES

DOLIT HB PRE-COAT

Component	kg/m ²	Part by weight	kg/batch	Litres/batch
Dolit-HB-Solution	0.500	100	12.500	8.800
Dolit-HB-Powder	0.500	100	12.500	10.900
Total	1.000	200	25.000	

Area per batch	≈ 25 m ²
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BEDDING AND JOINTING MORTAR

DOLIT HB MORTAR MASS

Component	kg/litre	Part by weight	kg/batch	Litres/batch
Dolit-HB-Solution	0.500	100	1.430	1.000
Dolit-HB-Powder	1.500	300	4.290	3.750
Total	2.000	400	5.720	

Volume per batch	≈ 2.86 l Mortar mass
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Mortar required for full-length installation (bedding joint 5 mm, butt joint 8 mm)

Split tiles 240 x 115 x 20 mm	≈ 7.5 l	15 kg/m ²
Split tiles 240 x 115 x 40 mm	≈ 9.5 l	19 kg/m ²
Bricks 240 x 115 x 65 mm	≈ 11.5 l	23 kg/m ²
Bricks 240 x 115 x 80 mm	≈ 13.0 l	26 kg/m ²
Bed joint thickness	4 – 8 mm	
Joint width	4 – 8 mm	
Joints depth	min. 15 mm	

MIXING / APPLICATION

Processing may only be started when the application requirements are met and can be maintained during the entire processing and curing.

NOTE!

The materials to be processed can have an aggressive effect on mixing and processing tools due to the solvents, acidic, alkaline or abrasive components they contain. Therefore, please use only suitable tools for mixing and processing.

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WORKING EQUIPMENT

Lambskin roller	Mortar mixer	Joint injector
Brush	Trowel	Joint board (rubber chip)
Surface brush	Joint iron	

MIXING SEQUENCE

- Stir the solution well with an anchor stirrer (300 - 500 rpm) before use or partial withdrawal. Move the stirrer past the vessel wall and bottom.
- Liquid components are measured or weighed and transferred to a mixing vessel.
- Solids are measured or weighed out individually, added to the solution in portions and mixed in carefully with an anchor stirrer (300 - 500 rpm) until a lump-free mixture is obtained.
- During the mixing process, move the stirrer past the vessel wall and bottom several times.

APPLICATION

To prevent rusting, steel surfaces should be coated with Dolit HB Pre-Coat immediately after blasting. For this purpose, Dolit HB Pre-Coat is applied evenly to the steel surface with a lambskin roller, brush or surface brush.

Dolit HB Mortar mass

NOTE!

The mortar must not come into contact with water during processing and curing. Do not use water as a smoothing agent. Do not re-work the mortar with water or additional solution during application. If the mortar rolls off surfaces during application, it should not be used any further.

- The mortar mass can be used for the full-joint or hollow-joint installation of tiles or bricks.
- Apply the bedding joint to the substrate.
- For full-joint application, apply the mortar mass to two side edges of the tiles or bricks. Then place the tile or brick in position.
- Remove the mortar bead with the trowel and smooth out the joint.
- With hollow joint installation, the butt joint remains free and is filled later.
- Special care should be taken to ensure that the work is free of voids.
- The subsequent jointing can be done with a joint injector, joint iron or joint board.
- To compact the joint, excess material is pressed into the joint with the joint iron. Remaining material is removed with the trowel.

POT LIFE

- At 20 °C, the working time is ≈ 30 - 60 minutes.
- The pot life depends on the temperature.
- Higher temperatures shorten it, lower temperatures prolong it.

WAIT- / CURING TIME

Curing times for full joint installation

- The curing time until the floor can be walked on depends on the temperature and is
 - 48 h at 5 °C.
 - 24 h at > 10 °C.
- The curing time to chemical resistance is at least 8 days at 20 °C.

Curing times for hollow joint installation

Tiles or bricks laid with hollow joints can be carefully walked on after 5 days at the earliest for the purpose of re-grouting.

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Re-grouting with synthetic resin mortar should be carried out after 5 days at the earliest. In this case, the walkability or commissioning of the finished grouted covering depends on the requirements of the jointing compound.

At 20°C, maximum hardening is only achieved after 28 days. If the product is to be used or commissioned before 28 days have elapsed, it is necessary to consult our application technology department in advance.

Basic conditions

- Commissioning of tile linings or brick linings after 5 days at the earliest.
- Commissioning of tile linings or brick linings when exposed to liquids above 150 °C after 8 - 10 days at the earliest.
- Lined tanks and apparatus should first be started up with diluted mineral acids.
- In the case of a longer time interval between completion and start-up or during prolonged downtime, it is expedient to fill one third of the tank or apparatus with low-concentrated acidic water. Open tanks must be covered.

POST-TREATMENT AND PRESERVATION

Acidification of the joints is necessary

- if there is a risk of neutral stress, e.g. from rainwater, between completion of the lining and commissioning.
- if no acidic load is applied during the start-up phase.

Acidification should take place after 5 days at the earliest.

In the case of hollow joint installation and subsequent grouting with phenolic or furan resin mortars, the floor is acidified after 5 days. The joints must then be dried.

After completion of the lining work, the joints must be fully acidified cleaned. The acid should be applied generously in a single application by brushing or spraying.

Dolit Acidifying agent can be used for acidification.

During the execution of the aforementioned work and for the period up to the actual commissioning, adequate weather protection must be ensured by means of suitable measures. Manholes and nozzles that have not yet been piped must be sealed weatherproof.

The formation of condensation on the inside of the tank or on the surface of the brick lining must be avoided mandatory. A relative humidity of < 40 % must be ensured.

All units must be protected from direct sunlight when exposed to intense sunlight. If there are considerable temperature differences between day and night, air conditioning measures may be necessary to maintain the required application conditions.

If there is a risk of frost, the required application conditions must be ensured by adapting the measures for weather protection (e.g. external tent, fan heater, etc.). In order to avoid frost effects on the mortar material, a temperature of at least 10 °C must be maintained on the steel or on the brick lining surface.

CLEANING

Tools that are soiled with uncured materials can be cleaned with Water.

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SAFETY / DISPOSAL

- Ensure sufficient ventilation, especially when working in closed rooms, pits or containers.
- Observe fire and smoking ban.
- Observe safety data sheets, hazard statements and safety advice on the containers.
- Wear prescribed personal protective equipment. Avoid skin contact with the materials.
- Clean and care for hands with skin protection soap and ointment. Do not use solvents.
- Wear a dust mask during grinding work, e.g. repairs.
- Follow operating instructions according to §14 GefahrstoffV and Technical Rules for Hazardous Substances TRGS 507.
- Comply with the accident prevention regulations of the employers' liability insurance associations.
- Avoid direct contact of the materials with the flame, especially when welding, watch out for welding beads.
- Preferably consume residual quantities.
- Do not pour residues down the sink or into the dustbin.
- Collect residues for disposal separately in durable, sealable and labelled containers.

All information contained in this Product Information is based on the present state of our knowledge and practical experience. All data are approximate values for guidance only. A legally binding warranty of certain characteristics or the suitability for a certain purpose of use cannot be derived from this.

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This issue replaces all previous versions.