I. Technical Information

I.1 Description

Dolit K 14+ is a two component water glass mortar. After mixing Dolit-K14-Plus-Powder and Dolit-K14-Solution, the resulting mortar hardens due to a chemical reaction.

I.2 Properties and Application

With the exception of hydrofluoric acid, Dolit K 14+ is resistant to all acids as well as to oxidising agents, greases and oils, but not to alkalis.

Dolit K 14+ is primarily used as a temperature- and chemical resistant mortar to lay chamotte (fireclay) and acid resistant bricks. It used instead of a chamotte mortar, when a higher temperature or chemical resistance is needed. By using Dolit K 14+, the drying process is accelerated as no water is used for mixing the mortar.
Dolit K14+ reaches very good results in furnaces, such as drum type furnaces, rotary dryers, roasting kiln, sulphating roasting furnaces etc.; they are especially adapted for the use of SO_2 and SO_3 gas and working with temperatures of refractory cements, i.e. in the bodies of furnaces and boilers with cooled walls.

I.3 Physical Data

Density:	g/cm³	2,0
Compressive strength:	MPa	25
Flexural strength:	MPa	6,0
Maximum application temperature:	°C	1400

I.4 Important Chemical Resistances

• Mineral oil	+
• Otto motor fuel oil	+
• Toluene/Xylene	+
• Methanol/Ethanol	+
• Isopropyl alcohol	+
• Ethyl acetate	+
• Acetone	+
• Methyl isobutyl ketone	+
• Trichloroethylene	+
• Aldehydes	
• Hydrochloric acid 37%	+
• Phosphoric acid 85%	+
• Chromic acid 20% CrO_3	+
• Hydrofluoric acid	-
• Sulphuric acid 90% at 100°C	+
• Nitric acid 65%	+
• Acetic acid 100%	+
• Oleic acid	+
• Caustic soda, caustic potash solution 50%	-
• Chlorine bleach 13%	-
• Ammonia 25%	+
• Hydrogen peroxide 30%	+

\+ = resistant (at 20 °C)
o = briefly resistant
– = non-resistant

Our materials are subject to constant testing and improvement so that changes may not yet have been taken account of at time of printing. We would therefore ask you to review the basic technical specifications with your contact at our company prior to application.

All details given in this Technical Information Sheet are accurate to the best of our knowledge at time of printing, however we reserve the right to make changes. No liability on our part can be inferred or accepted on the basis of the information given here.

We would like to point out that the materials we offer are specialist products that require expert knowledge and confidence in application by the user.

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II. Preparation and Application

II.1 Requirements for Application

Steel substrates have to be treated by sandblasting (e.g. using corundum) until they shine metallic. To prevent immediate rusting, a thin layer of mortar laitance made of Dolit-K14-Plus-Powder and Dolit-K14-Solution (mixing ratio 1 : 1 per kg) must be applied over the surface at once after sandblasting. The amount required to cover 1 m²: 0.5 kg Dolit-K14-Plus-Powder and 0.5 kg Dolit-K14-Solution. All water glass mortars naturally display a certain amount of porosity that allows liquids to penetrate into the mortar. Cement substrates should therefore be provided with a liquid-blocking membrane in conformity with the basic rules of surface protection engineering. This resulting surface should be made in such a way that the water glass mortar applied to it can adhere properly.

⇒ Bedding and layer joint thickness from 4 to max. 10 mm
⇒ Joint width for bedding with hollow joints 5 to 8 mm
⇒ Joint depth for bedding with hollow joints min. 15 mm
⇒ The temperatures for the space, the substrate and the mortar material should remain between 10°C und 30°C during application.

II.2 Components

Component	Colour approx.	Article number	Package	Amount	Minimum Shelf life
Dolit-K14-Solution		5221022001	Hobbock	25 kg	24 months
Dolit-K14-Plus-Powder	grey	5221015001	Sack	25 kg	24 months

All components are to be stored and transported dry and frost free. Shelf life is specified for a storage temperature of 20 °C. Higher temperatures reduce, lower temperatures increase the shelf life.

Safety information: Please observe the corresponding Safety Data Sheets for information on handling, storing and transporting the materials!

II.3 Mixing ratios and working time

Material	Components	Measuring container L	= Kg	Kg per L	Litre weight = kg	Working time at 20°C	1 mixing cont. = L
Dolit K 14+ mortar	Dolit-K14-Solution	1.000	1.350	0.500	2.0	1 Stunde	2.700
	Dolit-K14-Plus-Powder	2.900	4.050	1.500			

After filling the mixing container with the weighted amount of silicate solution and adding the appropriate quantity of cement powder, the contents are thoroughly mixed until a homogeneous cement is obtained. For relatively large quantities a forced circulation mixer should be used. The working time is 60 minutes at 20 °C. After the working time, the mass mustn´t be used. Mixing additional Dolit-K14-Solution is prohibited.

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II.4 Application

The mortar cures in approx. 48 hours at +20° C and may not be disturbed while it is in the process of curing. Higher temperatures reduce, lower temperatures increase the hardening time. The hardening time is especially influenced by the surface temperature. If a longer working time is needed at higher temperatures, the product components have to be stored at low temperatures.
Furthermore, it is recommendable to preheat the mortar powder and, if possible, the brick and tile as well using dry air heated to approx. +25°C (brick and tile must not be warmer than the mortar). Water glass mortar must not be applied at temperatures below +10°C. If this minimum temperature is not maintained for a protracted period, i.e. for several hours, the quality of the mortar will be negatively impacted. Freshly applied mortar surfaces have to be protected from frost until they are fully cured.

Tools: Measuring container, mixing container, drill with stirrer, (on large work sites: forced mixer), trowel, jointer, brush, mortar smoothing agent ("Dolit Universal Cleaner"), work site safety signs

II.5 Post-treatment

Masonry and surfaces made using Dolit K 14+ don´t have to be heated because the curing process is based on a chemical reaction.

II.6 Commissioning

Masonry and surfaces made using Dolit K 14+ can be commissioned five days at the earliest after completion of work, in case of exposure to liquids at temperatures above +150°C at least 8 to 10 days. For chimneys DIN 285 has to be followed. Tanks or plant equipment with masonry applied using Dolit K 14+ should be initially started up using dilute mineral acids. If a longer period of time elapses between completion and commissioning, or for longer standstill periods, it is helpful to fill the tanks or equipment first up to a third with weakly acidic water. Cover open tanks.

II.7 Safety and Handling

Classification of products in accordance with the German Hazardous Goods Act and transport legislation and the recommendations such rules entail for handling and dispatching such products can change rapidly. To find the latest information on this, please refer to the most recent version of the Safety Data Sheet which we would be pleased to send to you on request.

Safety precautions:

- Operating instructions acc. to Sec. 14 of the German Hazardous Goods Act (abbreviated GefahrstoffV)
- Safety Data Sheets
- Accident prevention regulations of relevant accident insurers
- Fire prohibition / Smoking prohibition
- Sufficient ventilation and air removal
- Avoid contact of the materials with skin
- Clean hands with protective hand soap (no solvents)

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