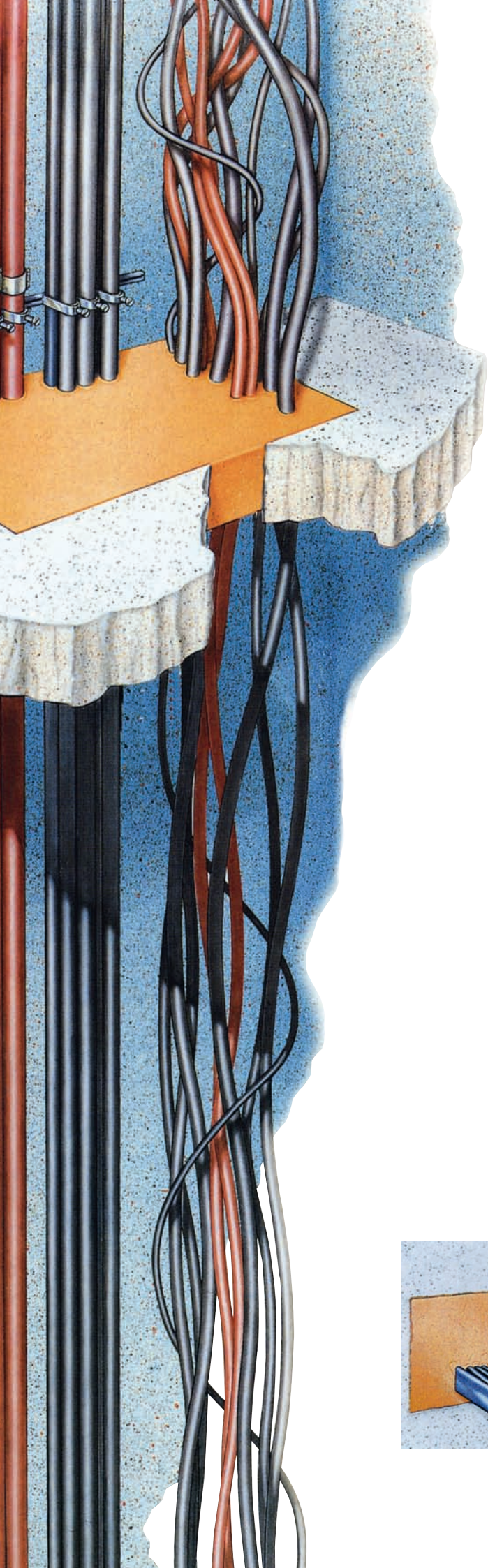


KBS[®] Mortar

For sealing cable and utility penetrations

 **BASF**

The Chemical Company



KBS® Mortar

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General Information

KBS® Mortar is a dry mortar mix with controlled swelling effect to provide a non-shrinking, homogeneous and smoke gas-tight fire seal for cable penetrations. Most mortars shrink during drying and curing.

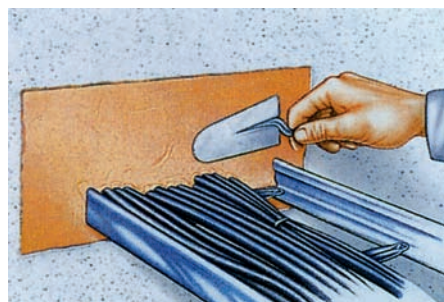
KBS® Mortar expands while it sets (up to 3%), ensuring a tight and crack-free seal. When mixed to pumping consistency, **KBS® Mortar** will not run or sag, allowing easy build-up of material inside a wall opening, whereby for smaller openings, shuttering is only necessary on one side.

KBS® Mortar has been rated up to 240 minutes fire resistance at various thicknesses as per all important standards. (See list of international test results and approvals on back page.)

KBS® Mortar is a blend of inorganic binders, fillers and lightweight aggregates, interlaced with special additives and agents.

KBS® Mortar may be used wherever a fire resistance up to 240 minutes for cable penetrations is specified.

KBS® Mortar is preferably used for floor penetrations but, because of its non-sagging properties, is also easily installed in wall penetrations.



Installation wall penetrations

Pump application

Shutter one side of the opening and start applying **KBS® Mortar** from the open side using a pump type mortar mixer/applicator (such as Putzmeister „Spray-boy“). This equipment must have a shut-off valve for intermittent application. Using **KBS® Mortar** at the correct consistency (see box), will prevent it from running or sagging and allow for an easy build-up of the mortar seal. When sealing large penetrations (more than 30 cm in height) it is advisable to support the applied material on the front side with panels as filling progresses. Where no front-shuttering was used (smaller openings) the mortar may be levelled out with a trowel after 1 hour of setting. Removal of shuttering, depending on temperature and opening size, after at least 24 hours.

Manual application

For small installations or repairs (retrofitting), **KBS® Mortar** may be mixed manually. Please follow the same preparation procedures as mentioned before. For wall installations use heavier consistency to achieve a stiff non-sagging material which can be applied by trowel. For floors use more water.

Retrofitting

New cables or other utilities may be installed in a **KBS® Mortar** seal with ease. The material is of low compressive strength and allows easy drilling (by hand or motor drill) for an adequate opening. After cables have been passed through, some hand-mixed **KBS® Mortar** is used for resealing. A bulk loading caulking gun can be used for this.

Installation Floor penetrations

Shuttering

The underside of the floor opening is to be shuttered with suitable materials (such as hard-foam panels, held in place by a wooden lath). Please note, exact cutting around penetrating utilities is not necessary.

Preparing

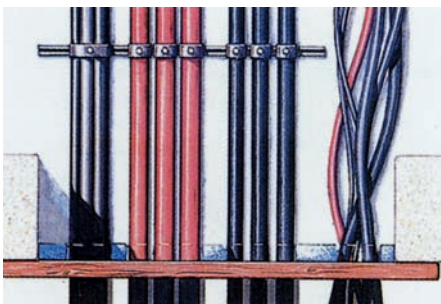
For closing gaps of the shutter, mix **KBS® Mortar** to heavy consistency, using less water (see box). Apply this heavy mix by trowel over all remaining openings and allow to set for at least 1 hour. All masonry surfaces coming in touch with the mortar must be free of loose dust, dirt or oil and should be wetted prior to application of mortar.

This also applies to wall penetrations.

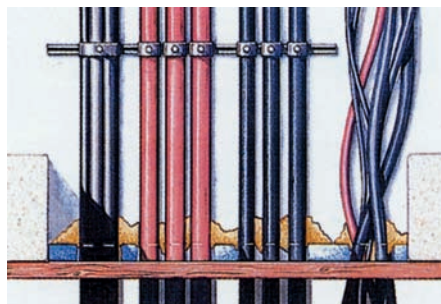
Pouring

Mix **KBS® Mortar** to pouring consistency (see box), using conventional mortar mixing equipment (cement mixer). Pour **KBS® Mortar** into the opening up to the level of the floor. It will flow between all utilities and level out to a perfect finish. Allow to dry and cure at least 1 week (longer for very large openings) before removing shuttering. If access to the floor penetration is necessary, use any suitable cover.

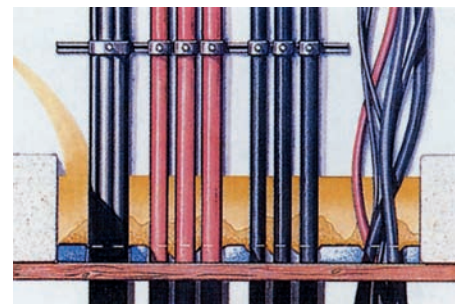
Shuttering



Preparing



Pouring



KBS® Mortar: Technical Data

Colour: Red

Bulk density: Approx. 600 g/l

pH-value at working consistency: 12.3

Toxicity: Non-toxic

Shelf life:

In original, unopened bags at least two years

Storage temperature: -20°C / +40°C

Combustibility: Non-combustible

Packaging:

25 kg multi-layer bags with polyethylene lining

Density of cured material: Approx. 0.6 g/cm³

Compressive strength:

Approx. 0.6 – 0.7 N/mm²

Expansion: Approx. 3 Vol.% (20°C / 24 h)

Workability: Max. 60 minutes

Complete hardening: Approx. 30 days

Minimum temperature for application of

KBS® Mortar: + 5°C

Cleaning of equipment:

Water immediately after use

Mixing dry KBS® Mortar

Water/mortar ratio for various types of application

Pour about half of the indicated amount of water into mixing container and start mixing.
Add rest of water slowly.

	Manual application (small openings)	Pump application (walls and floors)	Pouring application (floors)
25 kg dry mortar	16 l water	17 l water	18 l water
Approx. yield	35 – 36 l	36 l	36 l
1 kg dry mortar	0.65 l water	0.70 l water	0.72 l water
Approx. yield	1.4 – 1.5 l	1.5 l	1.5 l

List of International Test Results and Approvals of KBS® Mortar

Country	Testing Institute/ Approval Body	Ceiling or wall test	Mortar seal thickness (mm)	Official fire resistance rating F/T** (minutes)	Standard	Ref. No.
Australia	Nat. Building Techn. Center	floor	120	30 – 120 T 120 F	AS 1530 p.4	3101
Belgium	Université de Liège	wall	190	120 F/T	NBN 713.020	315
France	C.S.T.B.	wall	200	120 F/T	Arrêté Ministériel	624
Germany	DIBt, Berlin	wall	200	90 F/T*	DIN 4102	125
		floor	200	90 F/T*		
Italy	CSI	wall	250	180 F/T	Circulare n. 91	1011
	Instituto Giordano	flor	250	180 F/T	Circulare n. 91	1012
South Africa	South African Bureau of Standards	wall	225	120 F/T	SABS 017 p. II	4005
Switzerland	VKF	wall	200	90 F/T*	VKF, AEA1	506
		floor	200	90 F/T*		
UK	LPC/BRE	wall	100	240 F/T	BS 476, p. 20	941
	BRE	floor	100	240 F/T	BS 476, p. 20	946
USA	UL	floor	200	180 F 0 – 120 T	UL 1479	2016
	UL	wall	80	180 F	UL 1479	2030
		floor	80			
UL	wall	120	120 F	UL 1479	2031	
		floor	120			

* in Germany and Switzwerland only 90 minutes are required

** F = fire rating / T = temperature rating on cables

All test reports on request.

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