

epotech crystal

epotech crystal is an epoxy putty for grouting tile joints. Two-component putty with a translucent finish. It reflects the color of the tile or mosaic surrounding the joint. It features all the properties of epoxy putties: watertightness, high resistance to chemicals and mechanical properties. Specially recommended for application on mosaics and ceramic tiles with relief. Extra fine microgranular grouting material.

This material is suitable for grouting joints up to 5 mm in floor and wall tiles indoors. Excellent resistance to chemicals in high concentrations. Suitable for permanently damp environments.

Recommended use

- Par-ker floor coverings.
- Technical, porcelain floor coverings.
- Mosaic or natural stone wall coverings.
- Damp environments.
- Tile joints with uniform color and shade, resistant to the passing of time.

Materials

- Absorbent and non-absorbent ceramic tiles, including porcelain tiles.
- Glass mosaic.
- Natural stone and marble not prone to staining.

Before applying **epotech crystal** on any ceramic floor not included in the list above, carry out a prior test or check with the Technical Department at butech.

Substrates

All usual substrates for ceramic tiles laying.

Features

- Extra fine microgranular grouting material.
- Two-component colored epoxy putty.
- Translucent appearance.
- Easy to apply and clean.
- High resistance to most chemicals and alkali, even in high concentrations.
- Waterproof joint, no water absorption.
- Excellent adherence and mechanical resistance.
- Prevents the development of fungi and bacteria.
- Heat-resistant.
- Tile joints up to 5 mm.

Certifications/Standards:

EN 13888 RG

Instructions for use

Preparing the grout

epotech crystal is a two-component epoxy grout. Both components are supplied in the same package with the proportions ready to be mixed. Proportions are the following:

- | | | | |
|---------------|-------------|------|---------|
| - Component A | epoxy putty | 94 % | 2.82 kg |
| - Component B | catalyst | 6 % | 0.18 kg |

Do not add any other components to the mix. Below are instructions for preparing this adhesive:

- Use clean tools and containers.
- Shake the catalyst well.
- Mix according to the proportions indicated, making sure all the catalyst is added to the mix. Add component B to component A
- Carry out a first mixing with a masonry trowel so that the catalyst wets the epoxy putty as much as possible.
- Mix with an electric mortar mixer at low speed (400 rpm) until you get a creamy, even and lumpless mass. Use a spiral mixing paddle for epoxy putties.
- Stir with the trowel and apply.
- Do not add any other components to the mix.
- In case the epoxy putty to be used is less than 3 kg, use a scale to weigh the quantities to be used and mix at the indicated proportions.

Applying the grouting material.

Before starting the sealing of joints, check that the adhesive used in the laying of the tiles has totally hardened and that the moisture from the back of the tile has been taken out. This is specially important for mosaics or large format tiles with little absorption and minimum joint.

epotech crystal is a two-component putty that once hardened is virtually impossible to clean, so we recommend to be extremely cautious with the drying times. Under no circumstances let the putty harden on the tile.

We recommend you take these precautions:

- Check that the tiling joints are free of any element which could interfere with the grouting material. The joints must be clean of bonding materials and have an even depth along the line of at least 3/4 of the tile thickness.
- Clean any other remainders of dust or dirt on the tiles to grout.
- Check that the tiling joint is completely dry.
- Protect all the elements present in the tile which are sensitive to epoxy putty attack.
- Do not use metallic tools which can scratch the tile surface.

The recommended applying technique is the following:

- Spread the product and press using a hard rubber trowel until you fill all the joint. Take off the excess of product with the same trowel, moving the tool diagonally from the tiles.
- Clean when the epoxy putty is still fresh. The waiting time can change depending on water absorption, room temperature and ventilation.
- Clean excess of grouting material with an abrasive sponge for epoxy putties slightly wet.

- Pass the sponge diagonally over the joints and rinse in clear water as much as it is needed. Before using the sponge, rinse thoroughly.
- After 24 hours, repeat the cleaning of the tile with a sponge or dampened cloth with a 50% mix of clear water and denatured alcohol.

As a general rule, we do not recommend to leave tiling joints narrower than 1.5 mm indoors and 5 mm outdoors. Currently, there is a wide variety of spacers to ease the tile setter's job, but we specially recommend butech's self-leveling spacers, which, apart from marking the joint width, avoid the appearance of hedges between tiles and tiling defects.

Putting into service.

Leave the mortar to harden for a minimum 24 hours before walking on a tiled floor. Adverse environmental factors can delay the hardening of the adhesive, so if in doubt, wait for 36 hours.

Coverage

The grouting material coverage depends on the tile dimensions, joint width and grouting material density. The formula for this calculation is the following:

Tile dimensions:

- Length	a (mm)	$\frac{(A+B) \times C \times J \times 1,55}{(A \times B)} = \text{Kg/m}^2$
- Width	b (mm)	
- Thickness	c (mm)	
- Joint width:	j (mm)	
- Coefficient	d (gr/cm ³)	

Coverage table according to tile

2 x 2 cm, 3 mm thick mosaic	530 gr / m ²
Mosaic-type wall tile	600-800 gr / m ²
20 x 20 cm, 8 mm thick wall tile	150 gr / m ² and joint millimeter
30 x 60 cm, 10 mm thick wall tile	90 gr / m ² and joint millimeter
30 x 30 cm, 9 mm thick floor tile	110 gr / m ² and joint millimeter
40 x 40 cm, 10 mm thick floor tile	90 gr / m ² and joint millimeter
60 x 60 cm, 10 mm thick floor tile	50 gr / m ² and joint millimeter

Cleaning and maintenance

Before starting the application of the grouting material and to avoid later problems, we recommend to refer to the data sheet of the tile supplier and to check for:

- Irregularities or micropores on the tile surface which make difficult to clean the grouting material. If in doubt, we recommend to perform a preliminary test.
- Presence of decoration on the tile surface sensitive to the action of grouts.
- Chemical resistance to epoxy putties.
- Chemical resistance to acid cleaners.
- Scratch resistance with common grouting materials. If in doubt, we recommend to perform a preliminary test.
 - Surface stains of epoxy resin films are taken out with organic solvents like alcohol or acetone.
 - There are cleaners for epoxy resins, but they are only efficient before the putty has hardened completely.
 - Clean any reminders of adhesive with **epotech cleaner**, denatured alcohol or acetone before it hardens. Once the epoxy putty has hardened, it can only be taken out mechanically.
 - Once the lying finished, clean the tool generously with denatured alcohol or acetone before it hardens.
 - Refer to the maintenance instructions of the supplier of the flooring used.

Preservation

- 24 months in its original package and protected from moisture and the elements. Store in a dry location, covered and protected from direct sunlight.
- We recommend to keep at a temperature of 20°C 2 days prior to application.

Health and safety

epotech crystal is a corrosive chemical which can cause an irritating effect in skin and mucous membranes. Be extremely cautious when handling and applying it.

- We recommend to take the usual precautions in the use of chemicals, as the use of gloves and goggles.
- MSDS available for professionals upon request.

Supplementary Instructions

- We only recommend to apply **epotech crystal** with a hard rubber trowel. It is better not to use soft rubber trowels or any other metallic tool.
- **epotech crystal** is a grout for professional use. Scrupulously follow all the indications about preparation and application of the adhesive.
- Scrupulously respect the mixing proportions between putty, catalyst and epoxy.
- The reaction between components A and B is an exothermic reaction (it gives off heat) so an excessive stirring during mixing reduces the adhesive's service life.
- Working times depend on wind, moisture and temperature conditions at the work site, so the working times indicated in this sheet can change in relation to those where the lying is being carried out.
- Low temperatures increase the viscosity of the putty so it is more difficult to apply and clean.
- High temperatures reduce working times.
- Protect from rain and frost at least during the first 24 hours.
- Do not apply when temperature is below +5°C or above + 30°C.
- Do not use **epotech crystal** in joints wider than 5 mm. It can cause fissuring, cracking or pin-holes in the grout.
- Be extremely cautious when lying non-glazed absorbent tiles, marble and other natural stones.
- Do not apply on wet substrates or those with risk of ascending dampness.
- Never use for movement joints, either structural, perimetral or partition.
- The layout, width and constructive details of the perimetral and intermediate movement joints, as well as the materials to be used, must be included in the tile laying project.
- Respect all the structural joints present in the substrate.
- Make perimetral movement joints in corners, level changes in the floor and at the height of changes of material.
- As a general rule, make intermediate movement joints which delimit areas as square as possible of 16-25 m² outdoors and 50-70 m² indoors. They must have a minimum width of 8 mm.
- The technical information included in this data sheet has been gathered from tests at certified laboratories and in the conditions stated by the relevant standards.
- For further information about this product, refer to the **Technical Department at butech**.

Data Sheet Conditions

- This data sheet does not describe a finished product; it is a grouting material which, together with other products and materials, determines a ceramic tiles lying system. Instructions in this technical sheet have been written based on our experience and technical expertise, but they have to be considered as general recommendations, which together with those for the rest of the products in the system, help the tile-laying professionals in the performance of their job.
- As it is not possible to know all the features and conditions of a building job, professionals must consider it and, if deemed appropriate, perform a previous test to confirm whether the product is suitable for the job.
- The technical sheet cannot reflect all the applications and conditions entailed in the use of a material, so, in situations not described in this sheet, we recommend to perform a previous test and refer to our technical department.
- This sheet has been updated in Juny, 2016.

Technical Data

Appearance		
Component A	Translucent, thick paste	
Component B	Amberish fluid (catalyst)	
Dangerousness	Irritating and corrosive (refer to MSDS)	
Flammability	No	
Preservation time	24 months in a dry place	
Mixing proportion:		
Component A	94 %	2.82 kg
Component B	6 %	0.18 kg
Mix specific weight	1.55 g/cm ³	
Application temperature	+5° C and +30° C	
Service life	approx. 45 min.	
Walkability at 20°C	12 h	
Putting into service	4 days	

Resistance		
Abrasion	EN 12808-2	215 mm ³
Traction	EN 1348	≥ 1.5 N/mm ²
Water absorption after 240 min.	EN 12808-5	0.04 gr
Heat resistance		-40° C up to + 110° C

Data obtained under laboratory conditions, at 23° C and 50% relative moisture.

Chemical resistance (EN 12808-1)

Acid	Concentration	Permanent contact	Occasional contact
Acetic	2.5%	**	***
	5%	*	**
	10%	*	*
Hydrochloric	37%	***	***
Citric	10%	**	***
Formic	2.5%	**	***
	10%	*	*
Phosphoric	50%	***	***
	75%	*	**
Lactic	2.5%	**	***
	5%	*	**
	10%	*	*
Nitric	25%	**	***
	50%	*	*
Oleic	100%	*	*
Sulphuric	50%	***	***
	100%	*	*
Tannic	10%	**	***
Tartaric	10%	**	***

Legend: *** Optimal ** Good * Limited

Data obtained in normalised laboratory conditions, at 23°C and 50% relative humidity.

Nutritional substances	Principal nutritional substances (temporary contact)
Vinegar	**
Citrus fruits	**
Ethanol	***
Beer	***
Butter	***
Coffee	***
Casein	***
Glucose	***
Animal fats	***
Fresh milk	**
Malt	***
Margarine	***
Olive oil	**
Soya bean oil	**
Pectin	***
Tomato	**
Yoghurt	**
Sugar	***

Chemical resistance (EN 12808-1)

Fuels and oils	Permanent contact	Occasional contact
Petrol	*	***
Diesel fuel	**	***
Tar oil	**	**
Mineral oil	**	***
Oil	**	***
Turpentine	*	***
Turpentine	*	***

Legend: *** Optimal ** Good * Limited

Data obtained in normalised laboratory conditions, at 23°C and 50% relative humidity.

Alkalies and salts	Concentration	Permanent contact	Occasional contact
Hydrogen peroxide	10%	**	***
(Oxygenated water)	25%	*	***
Ammonia	25%	***	***
Calcium chloride	Saturated solution	***	***
Sodium chloride (common salt)	Saturated solution	***	***
Sodium hypochlorite (bleach)	1.5%	**	***
	13%	*	**
Sodium hydroxide	50%	***	***
Aluminium sulphate	Saturated solution	***	***
Potassium hydroxide	50%	***	***
Potassium permanganate	5%	**	***
	10%	*	***

Legend: *** Optimal ** Good * Limited

Data obtained in normalised laboratory conditions, at 23°C and 50% relative humidity.

Chemical resistance (EN 12808-1)

Solvents	Permanent contact	Occasional contact
Acetone	*	*
Ethanol	*	***
Benzene	*	**
Chloroform	*	*
Methylene chloride	*	*
Ethylene glycol	***	***
Perchloroethylene	*	**
Carbon tetrachloride	*	**
Tetrahydrofuran	*	*
Toluene	*	**
Trichloroethylene	*	*
Xylene	*	**

Legend: *** Optimal ** Good * Limited

Data obtained in normalised laboratory conditions, at 23°C and 50% relative humidity.

Stain-resistant (ISO 10545-14)

Staining agent	Time exposed to staining agent 24 hours	Time exposed to staining agent 30 minutes
Red wine	3	3
Mineral oil	5	5
Tomato sauce	2	5
Mascara	5	5
Coffee	2	5
Hair dye	1	2

References

KEA	SAP	Product description	Packaging	Palletising
B42562025	100126899	epotech crystal 3 kg	3 kg can	375 kg/pallet