epotech n



epotech n is an epoxy putty for grouting tile joints. Waterproof, two-component epoxy putty with outstanding chemical and mechanical properties. Specially recommended for tile joints requiring the highest mechanical and chemical properties.

This material is suitable for grouting joints from 3 to 15 mm in floor and wall tiles, indoors and out. Excellent resistance to chemicals in high concentrations. Suitable for pools and permanently damp environments. Suitable as high adherence grouting material for ceramic tiles with any absorption level and format, for glass mosaic or natural stone.

Recommended use

- Wall and floor tiles with special chemical resistance.
- Chemical industry and premises subject to thorough cleaning.
- Pools and damp environments.
- High traffic floors, outdoor floors, and terraces.
- Floor tiles on radiant heating.
- High adherence grouting material. Specially recommended.
  - Slate and natural stone.
  - Mesh backed glass mosaic.

Materials

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

Before applying **epotech n** on a ceramic wall covering not stated in the previous listing, please perform a test or check with **butech's Technical Department**.

Substrates

All usual substrates for laying ceramic tiles.

Characteristics

- Two-component colored epoxy putty.
- Excellent joint color stability.
- High resistance to most chemicals and alkali, even in high concentrations.
- Waterproof joint, no water absorption.
- Excellent adherence and mechanical resistance.
- Resistant to heat and UV radiation.
- Tile joints from 3 to 15 mm.
- Excellent joint color stability.

Certifications / Standards

EN 12004	R2
EN 13888	RG

Instructions for use

Preparing the grout.

epotech n is a two-component epoxy grouting material. The two components are supplied in the same package in the exact ratio for mixing. The ratio is the following:

- Component A epoxy putty 94% 4.7 kg
- Component Bcatalyst 6% 0.3 kg

Do not add any other component to the mix. The following are the instructions for preparing this adhesive:

- Use clean containers and tools.
- Stir the catalyst well.
- Mix according to the indicated ratio, making sure there is no catalyst liquid left to add to the mix. Add component B on component A.
- Mix first by hand with the trowel so that the catalyst impregnates the epoxy putty as much as possible.
- Mix with an electric mixer at low rpm (400 rpm) until the mass is creamy, uniform, and without lumps. Use a spiral type beater for epoxy putties.
- Stir with a hand trowel, and apply.

- Do not add any other component to the mix.
- If the amount of epoxy putty to be used is under 5 kg, weigh the amounts to use with a scale and mix with the indicated ratios.

Applying the grouting material

Before starting to seal the installation joints, make sure the adhesive has finished setting and that the moisture on the tile back has been eliminated, especially when it comes to laying mosaics or large format and low absorption tiles with minimal installation joint.

epotech n is a two-component putty which, once it has hardened, is practically impossible to clean; we therefore recommend using extreme care with cleaning times. Do not, under any circumstance, let the putty harden on the wall covering.

We recommend taking the following precautions:

- Check that there are no elements in the installation joints that could interfere with the grouting material. The joints must be clean from bonding material and have a uniform depth throughout their length of at least 3/4 the tile thickness.
- Clean off any dust or dirt remains there might be on the wall covering we are working with.
- Protect all elements present in the wall covering that are sensitive to epoxy putty attack.
- Do not use metal tools that may scratch the tile surface.

The recommended laying technique is the following:

- Spread the product and press using the hard rubber trowel, until the joints are completely filled; pick the excess with the same trowel, making diagonal movements on the pieces.

- Before cleaning the joints, wait a few minutes until the putty starts to harden. The wait time may vary depending on the water absorption, room temperature, and aeration.

- Clean off the excess grouting material with a slightly wet abrasive sponge for epoxy putties.

- Apply the sponge diagonally to the joint weave, and rinse with clean water as many times as needed. Before using the sponge, rinse as much as possible.

- Finish off the cleaning of the wall covering with a sponge or cloth, wet with a mix of 50% water and methylated spirit.

As general rule, it is not recommended to leave installation joints smaller than 1.5 mm indoors and 5 mm outdoors. There is currently a wide range of spacers and separators that make the work of the ceramic layer easier, but we highly recommend **butech's self-leveling separators** which, in addition to marking the joint width, avoid the appearance of ledges between tiles, and laying defects.

Commissioning

Let the mortar set for a minimum of 24 hours before allowing transit on a laid floor. Adverse environmental factors may delay the adhesive setting so if in doubt, let 36 hours pass.

Performance

The consumption of grouting material depends on the tile dimensions, joint width, and grouting material density. The mathematical formula for calculating it is the following:

- Tile dimensions:
- Length a (mm)
- Width b (mm)
- Thickness c (mm)
- Joint width: j (mm)
- Coefficient d (gr/cm^3)

$$\frac{(A+B) \times C \times J \times 1.55}{(A \times B)} = Kg/m^2$$

Table of consumptions per ceramic tile

2 x 2 cm Mosaic	960 gr / m^2
Mosaic type wall covering	600-800 gr / m^2
20 x 30 Wall covering	125 gr / m^2 and joint mm
30 x 90 Wall covering	90 gr / m^2 and joint mm
30 x 30 Flooring	95 gr / m^2 and joint mm
44 x 44 Flooring	75 gr / m^2 and joint mm
60 x 60 Flooring	60 gr / m^2 and joint mm

How to use as bonding material

Preparing the substrate

The substrate or laying base must be dimensionally stable, without risk of cracking and shrinkage due to mortar setting. In the case of substrates of over 40 mm, and in order to reduce structural movement tensions, we recommend decoupling the substrate using a polyethylene sheet, and making a joint around the whole floor perimeter. Alternatively, we recommend making a fully bonded base with mortar screed.

Substrates shall meet the appropriate characteristics for laying the tiles on a thin layer with a notched trowel:

- Residual humidity under 3%
- Clean off dust, grease, or any other substance that may compromise the bonding material adherence.
- Level and flat, deviations under 2 mm every 2 m of surface.

In the case that any of the defects listed above are present, they must be fully corrected before starting to lay the ceramic.

In very absorptive or inconsistent substrates, it is recommended to apply a primer to strengthen the substrate cohesion and reduce water absorption. We recommend using uniprim, primer based on synthetic resins.

Do not use this adhesive in substrates with risk of climbing moisture.

Preparing the adhesive

epotech n is a two-component adhesive made up of polyurethane putty (component A) and a catalyst (component B). The following are the instructions for preparing this adhesive:

- Use clean containers and tools.
- Mix with a ratio of:

• Component A	epoxy putty	94%	4.7 kg
• Component B	catalyst	6%	0.3 kg

- Do not add water or any other kind of solvent.
- Pour component B on component A, and mix manually until the catalyst impregnates the polyurethane putty superficially.
- Afterwards, mix with an electric mixer at low rpm (500 rpm) until the mass is creamy, uniform, and without lumps.
- Let stand 5-10 minutes.
- Stir with a hand trowel, and apply.

Applying the adhesive

For laying ceramic tiles or similar, the only recommended technique for **epotech n** is laying the tiles on a thin layer with a notched trowel. The notched trowel type will depend on the amount of adhesive to use in laying the tiles which, in turn, depends on the tile size, the characteristics of the tile back, and evenness of the laying surface. The following are the instructions for applying this adhesive:

- Do not use notched trowels larger than 8 x 8 mm.
- Spread a thin layer of adhesive on the substrate, with the smooth side of the trowel.
- Apply a second coat and comb with the notched part of the trowel.
- Distribute the adhesive grooves uniformly. For wall coverings, we recommend applying the adhesive horizontally, whereas for floors, we recommend applying it parallel to the tile's long side.
- Before laying the tile clean any element off the back, that could interfere with the bonding of the mortar.
- Check the wettability of the adhesive, and lay the ceramic on the fresh adhesive.
- Lay the tile on the adhesive until you get a uniform and full contact. We recommend pressing the tile with a slight back and forth movement, to squash the adhesive groove and cover the back of the tile.
- Check periodically, by removing an already placed tile, the level of adhesive coverage. We recommend a minimum level of 75 %

In the case of large formats, laying outdoors, radiant floors, heavy traffic, or overlappings, there must be 100% contact; therefore we recommend using the double bonding method where, besides applying the adhesive on the substrate as mentioned above, a thin layer is applied with the smooth end of the trowel on the back of the tile.

- The maximum adhesive thickness shall not exceed 8 mm.
- Once the setting time has passed, clean the installation joints in their full length, width, and depth.

Commissioning

Let the mortar set for a minimum of 24 hours before sealing the placement joints or allowing transit on a floor laid with **epotech n**.

Yield

6 x 6 Notched trowel 3 kg / m^2

8 x 8 Notched trowel 4 kg / m^2

20 x 30 cm Tile 3 kg / m^2

30 x 30 cm Tile 3 kg / m^2

30 x 60 cm Tile 4 kg / m^2

44 x 44 cm Tile 4 kg / m^2

Cleaning and maintenance

Before applying the grouting material, and in order to avoid later problems, we recommend consulting the supplier's technical data sheet for the type of wall covering used, and check:

- Presence of unevenness or micropores on the tile surface, which may difficult cleaning the grouting material. In case of doubt, we recommend performing a preliminary test.
- Presence of decorations on the tile surface, sensitive to grouts.
- Chemical resistance to epoxy putties.
- Chemical resistance to acid construction cleaners.
- Resistance to common grouting material scratches. In case of doubt, we recommend performing a preliminary test.

• Epoxy resin surface stains or film can be removed with organic solvents such as alcohol or acetone.

• There are epoxy-resin remains cleaners, but they are only really effective when used before the putty has completely hardened.

• Clean up any remaining adhesive before it hardens with methylated spirit or acetone. Once the epoxy putty dries, it can only be removed mechanically.

• Once the laying is carried out, clean the tool with plenty of methylated spirit or acetone before the remains harden.

• Check the supplier's maintenance instructions for the type of wall covering used.

Conservation

12 months in its original container and protected from moisture and the weather. Store in a dry place, covered and protected from direct sunlight.

Safety and hygiene

- **epotech n** is a corrosive chemical that can also cause an irritant effect on the skin and mucous membranes. Be extremely cautious when handling and applying.
- Please take the usual precautions in the use of chemicals, such as using gloves and safety goggles.
- Safety sheets available to the professional user who requests them.

Additional instructions

- We only recommend applying **epotech n** with a hard rubber trowel. Generally speaking, we do not recommend the use of soft rubber trowels or any kind of metal tool.

- **epotech n** is a grouting material for professional use. Follow scrupulously all instructions for preparing and applying the adhesive.

- Follow scrupulously the mixing ratio between the epoxy putty and catalyst.

- The reaction between components A and B is exothermic (it gives off heat), so an excessive movement during its preparation reduces the durability of the adhesive.

- Working times depend on the wind, humidity, and temperature workplace conditions, so the working times specified on this sheet may vary regarding those of the place where the work is being carried out:

- Low temperatures increase the viscosity of the putty, and therefore make its application and cleaning more difficult.

- High temperatures reduce working times.

- Protect from rain and frost at least during the first 24 h.

- Do not apply when the temperature is below 12 ° C or higher than 30 ° C.

- Do not use **epotech n** in joints wider than 15 mm. It may cause the appearance of fissures, cracking, or puncturing in the grout

- Do not use **epotech n** in joints less than 3 mm wide. We cannot guarantee that the grouting material will penetrate throughout the full length and thickness of the installation joint.

- Use extreme care when laying absorbent non-glazed tiles, marble, and other natural stones.

- Never apply in movement joints, whether they are structural, perimeter, or partition.

- The layout, width, and construction details of the perimeter and intermediate movement joints, as well as the materials to be used, should be included in the ceramic tile laying design.

- Heed the structural joints present in the substrate.

- Make movement perimeter joints in corners, floor level changes, and height differences in material changes.

- As a general rule, make intermediate movement joints that delimit areas as square as possible, 16-25 m2 outdoors, and 50 m2 -70 m2 indoors. They shall have a minimum width of 8 mm.

- The technical information contained in this technical data sheet has been collected from approved laboratory tests and under the conditions indicated by the corresponding standards.

- For more information about this product, check with butech's Technical Department.

Technical Sheet Conditions

- This is not a finished product technical sheet. It belongs to a grouting material which, together with other products and materials, configures a ceramic tile laying system. Instructions in this technical sheet have been written based on our experience and technical expertise, but they have to be only considered as general recommendations which, together with those for the rest of the products in the system, guide the laying professionals in 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	Dense colored paste
Component B	Amber liquid (catalyst)
Hazard	Irritant and corrosive (see material safety data sheet)
Flammability	No
Storage time	12 months in a dry place
Mixing ratio:	
Component A	94 % 4.7 kg
Component B	6 % 0.3 kg
Specific weight of the mixture	1.55 g/cm^3
Application temperature	12 ° C to 30 ° C
Durability	60 min.
Trafficability at 20 º C	24 h
Commissioning	3 days

Flexure		
Resistance	EN 120008-3	4.7 N/mm^2
Compression	EN 120008-3	3.1 N/mm^2
Water absorption	EN 120008-5	≤ 0.5%
Heat resistance		-30 ° C to 140 ° C

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

Chemical resistance (EN 12808-1)

Acid	Concentration	Permanent contact	Occasional contact
Acetic	2.5%	***	***
	5%	**	***
	10%	*	*
Hydrochloric	37%	**	***
Chromic	20%	*	*
Citric	10%	*	*
Formic	2.5%	***	***
	10%	*	*
Phosphoric	50%	**	***
	75%	*	*
Lactic	2.5%	***	***
	5%	**	***
	10%	*	**
Nitric	25%	**	***
	50%	*	*
Oleic		*	*
Sulphuric	1.5%	***	***
	50%	**	***
	98%	*	*
Tannic	10%	**	***
Tartaric	10%	***	***
Oxalic	10%	***	***

Legend: *** Optimal ** Good * Limited

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

Alkalies and salts		Permanent contact	Occasional contact
Ammonia	25%	***	***
Sodium hydroxide	50%	***	***
Potassium hydroxide	50%	***	***
Sodium hypochlorite (bleach)	6.5 g/l	**	***
Active chlorine	162 g/l	*	*
Active chlorine			
Sodium thiosulfate		***	***
Sodium chloride (common salt)		***	***
Calcium chloride		***	***
Iron(III) chloride		***	***
Aluminium sulphate		***	***
Sugar		***	***
Hydrogen peroxide	1%	***	***
(Oxygenated water)	10%	***	***
Sodium bisulphite		***	***

Legend: *** Optimal ** Good * Limited

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

Chemical resistance (EN 12808-1)

Fuels and oils	Permanent contact	Occasional contact
Petrol	***	***
Olive oil	***	***
Diesel fuel	***	***
Petroleum	***	***

Legend: *** Optimal ** Good * Limited

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

Solvents	Permanent contact	Occasional contact
Ethanol	***	***
Acetone	*	*
Ethylene glycol	***	***
Glycerine	***	***
Perchloroethylene	*	*
Trichloroethane	*	*
Trichloroethylene	*	*
Methylene chloride	*	*
Toluene	*	*
Benzene	*	*
Xylene	*	*

Legend: *** Optimal ** Good * Limited

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

References

KEA	SAP	Product description	Packaging	Palletizing
B42562001	100004371	**epotech n white 5 kg comp a+b**	5 kg can	375 kg / pallet
B42562002	100004372	**epotech n Manhattan 5 kg comp a+b**	5 kg can	375 kg / pallet
B42562005	100004373	**epotech n charcoal grey 5 kg comp a+b**	5 kg can	375 kg / pallet
B42562009	100007815	**epotech n ivory 5 kg comp a+b**	5 kg can	375 kg / pallet

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