VERSION 01/2015

LATEST TECHNOLOGY

- Innovative Tile Grouting Technology -

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BOTAMENT®
SYSTEMBAUSTOFFE

Expert Building Materials

All there is to know when it comes to grouting

Aesthetic demands and load requirements

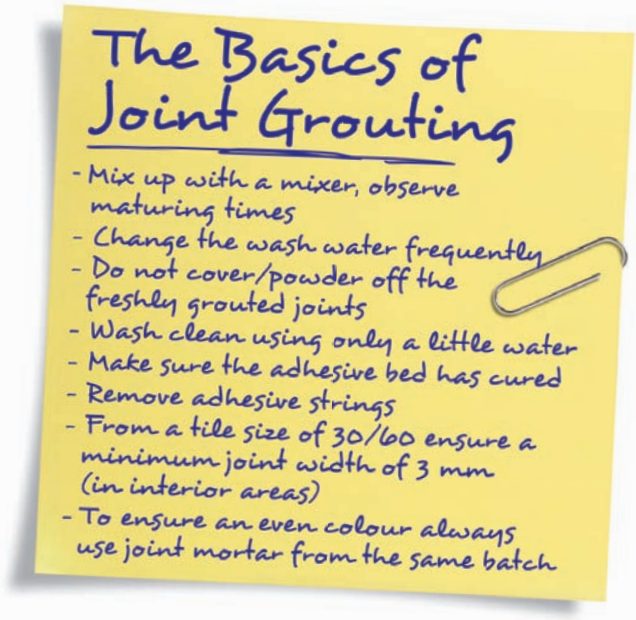
Large tiles and slabs with narrow joints coupled with an ever increasing array of client wishes when it comes to looks and load bearing capacity, means joints have to achieve a lot more than just a few years ago. Common sand and cement mixtures are no longer able to satisfy these more challenging requirements.

However, new generation joint mortars can cope with such raised expectations, offering clients and applicators a host of additional benefits to boot.

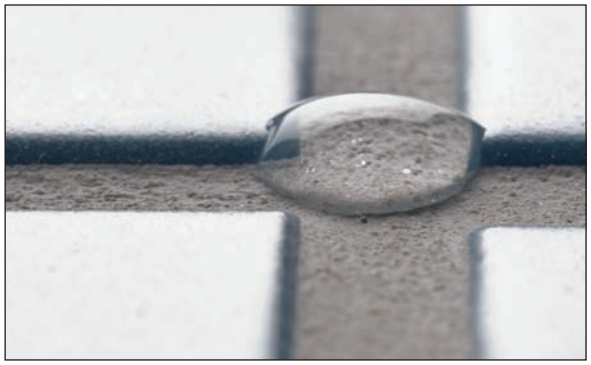
When there is a problem with tile or slab covers, it is usually the joint that is at the root of the problem. If the substrate is not stable or if there is negative water pressure with rearward moisture under the cover, poor quality joint mortar is usually blamed rather than ascertaining the true cause of the problem. A look inside the building regulations regarding the purpose of grouting/joints for tiles and natural stone covers identifies primarily just two tasks they need to perform.

On one hand the joints are to even out any unevenness in the tile materials and on the other hand joints/grouting greatly influences how the cover looks. It's especially the demands put on the finished look that cannot be underestimated and which have become the overriding concern of clients over recent years.

Technical requirements on joints have been clearly defined in the European Standard DIN EN 13888.
Here one can find classifications regarding compressive strength and bending tensile strength, as well as requirements on abrasion resistance and water absorption. Strengths and abrasion tests testify and demonstrate the material's suitability for use in industrial settings where mechanical loading is high. Strength tests after freeze-thaw-cycles and determining water absorption serve to prove a joint's suitability for use outside use.



Charactertistics of modern types of joint mortar



Modern joint mortars offer additional characteristics that are not even enshrined in the DIN standards. For example, mortar additives ensure the grouting is dirt and water repellent, making the cleaning of tiled floors or walls much easier. Some materials even feature special formulas that stop microbiological attack such as mould and other microorganisms.

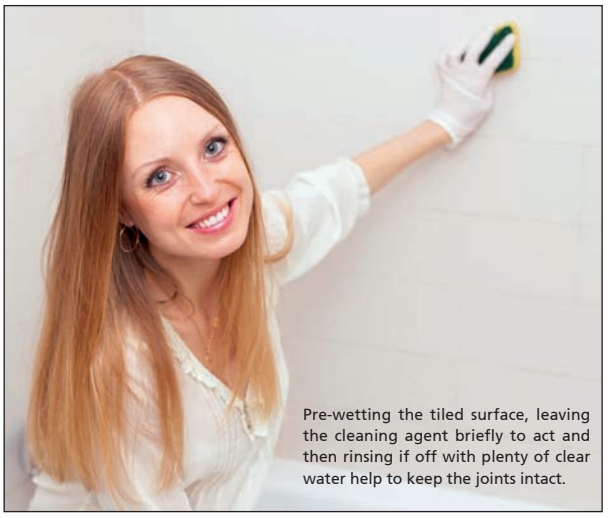
Application

It should be easy to insert the cream-like grout into the joint, which then builds up inside the joint and which can subsequently be smoothed easily with a sponge and finally washed off with ease, too. The joint mortar ought to have sufficient pot life so that it can be processed as long as possible. However, once inside the joint it ought to set quickly so as to enable a fast washing off of the area without any burn-up.

Application is primarily influenced by the additives' grading curve and the binding agent used. In contrast to the mortars of the past modern joint mortars use a mixture of different binding agents, whose curing behavior is controlled by way of using retardants and accelerators. Frequently a wash-aid is added to the joint mortar before it leaves the factory in order to facilitate the washing off process.

Cleaning and maintenance

A particular strain for joints is regular cleaning with mechanical aids, and using many different chemical agents makes matters worse.Especially in regions where water hardness levels are high, residential bathrooms tiles for instance quickly suffer unsightly limescale build-up.



Pre-wetting the tiled surface, leaving the cleaning agent briefly to act and then rinsing if off with plenty of clear water help to keep the joints intact.

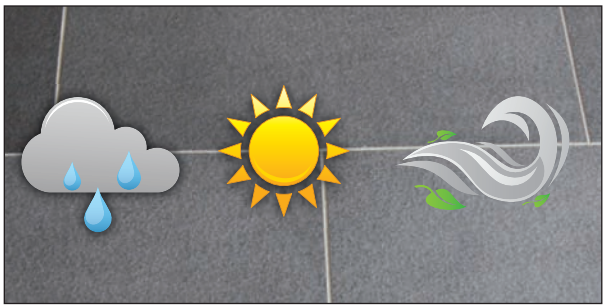
There are lots of cleaning products on the market which are highly acidic, claiming to "remove limescale".
A simple cured cement mortar with its high percentage of calcium is actually a close relative of limescale as far as its chemical make-up is concerned; as a consequence, such cleaning materials are actually doing more harm than good.

As a matter of fact, the same does also apply to most ecological cleaning materials, which, even though they contain the natural biodegradable acids of vinegar or lemon, are no less aggressive. And while adding modern binding agents and additives increases the acid resistance of joint mortars, the subsequent use of aggressive cleaning agents should nonetheless never exceed manufacturers' guidelines.

Pre-wetting the area, leaving the cleaning agent to act and then rinsing it off with plenty of clear water will help to keep joints intact.

Before any joint mortar can convince the user of its superior quality, it must firstly meet a fitter's professional requirements and must secondly,of course, be compatible with the cover material in question .

What to watch out for during curing



The most crucial and challenging time for the joint mortar is the curing period!

In order for the material not to dry up too quickly when it is sitting between absorbent fragments like stoneware tiles for instance, it must have good water retention capability. Drafts, sunlight and heat may also further sap water out of the grouting, which it so vitally needs to reach its final strength.

Premature water loss impairs a complete hydration process and results in low final strengths.

In the worst case scenario it is possible to remove the joint mortar after it has cured using ones' fingernails. Another problem might be that the loss of water is not even and consequently the colour of the joints is not even either, because the intensity of the joint colouring depends on the amount of mixing water used. In order to improve the water retention capability of the joint mortar additives are added to the formula that minimize the risk of premature water loss.

Dr. Oliver Wowra
Head of Technology

It's the grouting that determines the finished look

The appearance of a tiled surface is largely determined by the size and colour of the tile chosen. Different laying patterns such as half-offset or diagonal tiling can change the design and look further still.

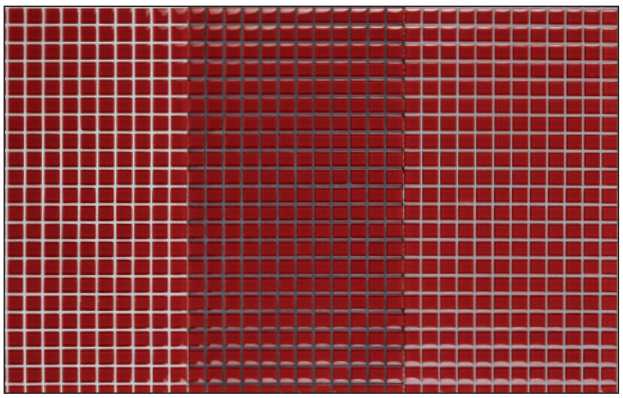
What is less well known, however, is the fact that it's actually the joint or grouting, which, depending on the size of the tiles, takes up more or less of the overall tiled area, and which subsequently has a massive effect on how the surface looks when finished.

Depending on the colour contrast that is being created by the tile and the joint, colours are perceived differently by eye and brain. A dark tile makes grey joints appear almost white, while a light-coloured tile with a dark joint makes the matrix that is created clearly stand out and it appears to lift off the area. As a result of the strong interdependence effect of the contrasting colours, optical perception is altered leading to a visual overload. The sense of sight tries to create a "whole image" where colours contrast heavily and comes up with a matching counter colour.

If this is not available an 'almost match' is created that, looking at the area as a whole, lets the colours appear differently.

Looking for example at a red area with a blue frame mixes the colours up in the viewer's eyes, with the colour red being perceived more like 'orange'.

- The sample shows the same mosaic using different grouting colours -



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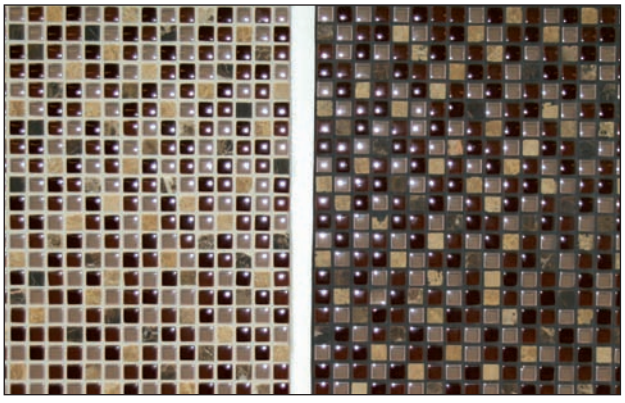

Depending on the size of the tile the grouting takes up more or less of the overall area and has thus a great impact on how the finished area appears.

Joint Mortar

Damage scenarious and their causes

Damage Scenario	Cause
The colour of the grouting differs along the joints	Variations in absorbency due to glazed / unglazed or cut tile edges. Tiles frequently have uneven glazing along their edges.
Parts of the jointing appears darker than the majority of the jointing	Damp substrates or fresh screeds can result in variations in colour.
There is an obvious colour difference between wall and floor joints (one grouting colour)	Non-vitreous stoneware / porcelain stoneware have a different absorbency which results in the grouting colour changing.
No moisture in the joint	• While already setting the material inside the bucket was remixed again with more fresh water. • During the curing process the joint lost water too quickly due to a highly absorbent tile, substrate, sunlight, a draft etc. **Countermeasure: Wash using sparkling mineral water (it might work, but it's not guaranteed!)**
Adhesive lines can be seen near the joints	Different joint thicknesses result in colour variations. As a general rule joints appear lighter if water is lost too quickly.
Hairline cracks near the tile edes. The substrate is decoupled wood flooring.	In spite of decoupling systems it is not possible to prevent crack formation, if the floor is not sufficiently solid.
White-ish efflorescence (on a drainage system) in an outside area	The constant moisture in the adhesive layer and sunlight transport lime to the surface.
Other causes for spotty joints or efflorescence	• Not mixed up well enough • Mixed up with too much water • The setting material was mixed up again adding more water • The mixing water used was very hard (high lime content)
Causes for crack formation (going across)	• Mixed up using too much water (shrinkage cracks) • Drying/curing happens too quickly • No expansion joint in the tile cover
The joint has partial red discolorations in the bathroom's splash water zone	"Red Mould" is a common occurrence in bathrooms. It isn't the joint that is affected but rather residues of cleaning agents and dead skin cells deposited on the grouting. **Countermeasure: mould remover**
The terrace or balcony grouting suddenly has a weird (light) colour and has turned soft	If concrete algae remover is left to act for too long on the grouting (e.g. over night), the grouting will be damaged. **Countermeasure: scratch out and re-grout**
The housewife uses eco-friendly cleaning agents (such as Ecover) but the grouting still turns soft or disappears	Such cleaning agent are biodegradable, however, they are still very aggressive. **Countermeasure: swap for milder cleaning agents and adhere to the cleaning recommendations issued by the ZDB**
Moss starts building up on the terrace joint	Moss tends to form in damp spots. Joints store moisture longer than tiles. **Countermeasure: use standard domestic cleaning agents**

All the grouting you're ever likely to need!

The new grouting concept from Botament®

Planning to redecorate one's home fitting tiles or natural stone often involves paying a visit to one's local tile merchant. Looking at the sample's size, intended use, patterns and textures are all factors that must be taken into consideration and in order for customers' to get a better impression, samples are laid out on the floor. Once customers have chosen which one they want, the tiles are ordered in and a professional tile fitter is contracted to install them.

The joint, a technical necessity that serves to even out dimensional differences between individual tiles, evening out tensions and producing a hygienic closure of the overall tile cover, initially takes second place when deciding which tiles to go for. However, besides its technical function the joint or grouting also has a huge impact on what the finished area will look like and really gives it the finishing touch.

With the huge variety of different tiles and natural stones available on the market today, there is also a vast array of special joint mortars to choose from - intended to provide the perfect match for the floor cover in question.

All the grouting you are ever likely to need!

Multi-functionality has always been Botament's strategy and key to success. The development of our tile adhesives MULTISTAR® and MULTISTONE® heralded a new era of multifunctional joint products.

The new, slimline grouting concept is the logical conclusion of this idea. Our tried-and-tested multi-grouting range is now being further extended by adding the latest development:

MULTIFUGE® Fine Speed.

Versatility in terms of application possibilities remains intact, we are just adding yet another special use area to 'cover all areas'. To achieve this each of our three joint mortars is assigned a special suitability and an optimum application of tiles and natural stones without ever losing its multifunctional character.

MULTIFUGE® Base,

MULTIFUGE® Fine,

MULTIFUGE® Fine Speed

- The unbeatable trio to suit all your grouting needs!

Dipl.- Ing. (FH) Michael Mones
Product Manager Tiles

MULTI*FUGE*® Fine*Speed*

Multi-purpose grout CG2 WA

Especially suitable for porcelaine stoneware, vitreous stoneware, natural stones and glass mosaic

MULTIFUGE® Fine Speed is a versatile applicable joint mortar especially suitable for premium-quality materials which are slightly absorbent and non-absorbent in both interior and exterior areas. Due to the Hightech Speed Technology wall and floor zones could be already washed after a short period of time. The Fine Speed and smooth surface provides the perfect finish particularly in case of exclusive wall and floor zones.

- For joint widths up to 10 mm
- Flexible - For heated areas
- Fine Speed and smooth surface
- Water and dirt-repellent
- High early strenght and high yield

Consumption: Joint width 3 mm
Mosaic 2.0 x 2,0 x 0.3 x 0.3 = 1.33 kg/m²
Joint width 4 mm
Tiles 60 x 60 x 0.4 x 0.8 cm = 0.23 kg/m²
Joint width 4 mm
30 x 60 x 0.8 x 0.4 cm = 0.34kg/m²

4 kg Paper bag
(4 units packed in foil)
Pallet delivery:
96 x 4 kg

Colour: white (no. 10)
pergamon (no. 11)
silver grey (no. 16)
manhattan (no. 23)
grey (no. 24)
titanium grey (no. 25)
anthracite (no. 26)
bahama beige (no. 33)
cacao (no. 38)

20 kg Paper bag

Pallet delivery:
40 x 20 kg
Colour: white (no. 10)
pergamon (no. 11)
silver grey (no. 16)
manhattan (no. 23)
grey (no. 24)

MULTI*FUGE*® Fine

Multi-purpose grout CG2 WA

Especially suitable for stoneware and vitreous stoneware

MULTIFUGE® Fine is a versatile applicable joint mortar especially suitable for premium-quality materials which are absorbent and slightly absorbent in both interior and exterior areas. The fine and smooth surface provides the perfect finish particularly in case of exclusive wall and floor zones.

- For joint widths up to 7 mm
- Flexible - For heated areas
- Fine and smooth surface
- Water and dirt-repellent
- High flank adhesion in slim joints

Consumption: Joint width 3 mm
Mosaic 2.0 x 2,0 x 0.3 x 0.3 = 1.33 kg/m²
Joint width 4 mm
Tiles 60 x 60 x 0.4 x 0.8 cm = 0.23 kg/m²
Joint width 4 mm
30 x 60 x 0.8 x 0.4 cm = 0.34kg/m²

4 kg Paper bag
(4 units packed in foil)
Pallet delivery:
96 x 4 kg
Colour: white (no. 10)
pergamon (no. 11)
silver grey (no. 16)
manhattan (no. 23)
grey (no. 24)
titanium grey (no. 25)
anthracite (no. 26)
cacao (no. 38)

15 kg Paper bag

Pallet delivery:
40 x 15 kg
Colour: white (no. 10)
pergamon (no. 11)
silver grey (no. 16)
manhattan (no. 23)
grey (no. 24)

MULTI*FUGE*® Base

Multi-purpose grout CG2 WA

Especially suitable for porcelaine stoneware, vitreous stoneware and natural stones

MULTIFUGE® Base is a fast-setting joint mortar suitable for a vast range of application areas and for slurry application in both interior and exterior areas.
Due to the excellent working and washing properties the completion of large wall and floor zones is possible within minimised time.

- For joint widths from 3- 30 mm
- Flexible - For heated areas
- Slurry application without burning up
- For balconies and terraces
- Great steam jet and abrasion resistance

Consumption: Joint width 8 mm
Split tiles 24.0 x 11,5 x 1.0 = 2.07 kg/m²
Joint width 5 mm
Tiles 20 x 20 x 0,8 x 0.5 cm = 0.75 kg/m²
Joint width 4 mm
30 x 60 x 0,8 x 0.4 cm = 0.36 kg/m²

Colour: sand grey (no. 15)
silver grey (no. 16)
concrete grey (no. 20)
grey (no. 24)
titanium grey (no. 25)
anthracite (no. 26)

5 kg Paper bag
(4 units packed in foil)

Pallet delivery:
96 x 5 kg

25 kg Paper bag
Pallet delivery:
40 x 25 kg

Our new joint mortars - fit for most site scenarious you are ever likelely to encounter.

Colour brilliance and fit for multifunctional use: Botament grouting has it all.

No.	Colour	MULTIFUGE® Fine *SPEED*	MULTIFUGE® Fine	MULTIFUGE® Base	M 32 SUPAX standard coloured joint	S 5 Supax	S 3 Supax
		up to 10 mm, porcelaine stoneware, vitreous stoneware, natural stone & glass mosaic	up to 7 mm, stoneware and vitreous stoneware	3-30 mm, porcelaine stoneware, vitreous stoneware & natural stones	up to 5 mm, very smooth and silky surface, for heated areas, easy to wash	Sanitary silicone	Natural stone silicone
01	transparent					●	
10	white	●	●		●	●	●
11	pergamon	●	●		●	●	●
15	sand grey			●			
16	silver-grey	●	●	●	●	●	●
20	concrete grey			●		●	●
23	manhattan	●	●			●	●
24	grey	●	●	●	●	●	●
25	titan grey	●	●	●		●	●
26	anthrazit	●	●	●		●	●
29	jasmin				●	●	
33	bahama beige	●	●			●	●
38	cocoa	●				●	●

Colours may differ from the original colour. For details about packaging types and quantities please see our current product list.

Multifunctional

Low in emissions

Excellent washing characteristics

Early walkability & early load bearing

Top colour quality

3 Multifugen - any application!

BOTAMENT®
SYSTEMBAUSTOFFE

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FACHVERBAND FLIESEN UND NATURSTEIN
im Zentralverband des Deutschen Baugewerbes

Botament is an official partner of "Healthy Living with Ceramics" a European Union initiative and is a partner of tile fitting associations and leading manufacturers.

gesundes Wohnen mit Keramik

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Up-to-date technical datasheets, brochures, product leaflets etc. can be downloaded at www.botmanet.com.

The information provided here is based on our experience gained over many years and is given to the best of our knowledge, but is non-binding. All instructions must be adapted to suit the individual building projects, the application purpose and the specific local conditions. As we are continuously improving our products and because new application technologies and equipment must also be taken into consideration for all applications, we are constantly updating our technical datasheets. The content of this leaflet has been put together according to the technical standards and knowledge as of January 2015. Please check prior to using the information at hand that it is still current at the time you wish to use it. The latest technical datasheet available for download on our website www.botament.de is the one that applies at any given time. The present document will be superseded by the latest edition. Issue 1; Bottrop, version: January 2015