

TECHNICAL UPDATES

Why do we get colour variations in grouts?

Portland Cement has three basic requirements:

- Appearance: an accurate and consistent grout colour and smooth texture to the surface of the grout.
- Application Characteristics: Type of Tile.
- Physical Performance: Substrate and Environmental conditions can all limit colour consistency.

Properly maintaining the grout will assist with the prevention of discolouration, however the surface of the grout is porous and therefore will stain or easily harbour contaminants.

Portland Cements Grouts react & hydrate with water to form calcium silicate and calcium aluminate hydrates. These hydrates are hard and crystalline in nature giving cement its strength. However the reaction is complex and unpredictable, yielding several main reaction products and potentially hundreds of minor products.

The basic components of grouts consist of Cement Hydration Products, Pigments, Fillers and Additives, which combine to form the grout, colour.

The primary factors affecting colour are?

- Grout Formula
- Quality
- Application Technique
- Correct Cleaning Off Procedure

N.B There is nothing within the manufacturing process of the grout, which can either cause or prevent discolouration of the grout.

The primary factor effecting surface texture are?

- Absorbency of tile/substrate
- Time between mixing up the grout and applying into joints
- Time between applying to tile and finishing
- Amount of water used to finish
- Contamination from cleansing materials/tools/foodstuff

What happens if the grout is left too long once mixed?

If the grout is left too long after mixing and starts to stiffen the finished application of grout in the joint will produce a rough surface texture. This texture can appear as surface discolouration and may appear darker than grout in surrounding areas.

What happens if the joint is finished whilst still wet?

The fines (usually cement) commonly known, as laitance will be brought to the surface, once dry it produces a powdery light surface colour.

This surface texture can be removed to expose the true colour of the grout by washing with a mild hydrochloric acid wash.

N.B. We strongly do not recommend this route unless a patch test has been conducted.

Raking out of the grout may be administered however as previously stated there is nothing in the grouts manufacturing process that can cause or prevent the discolouration and hence re-grouting may not solve the problem.

How do we maintain colour consistency within the grout?

The only way to prevent laitance from occurring on the grout surface is to finish the grout joint at the same time i.e. when the grout is firm enough to resist the pressure of a thumb. This procedure should be simple but can be affected by many variants:

- Absorption of the tile
- Moisture content of the grout
- Time between mixing of the grout and application to tiles
- Time between application of the tiles and finishing off of the grout
- Absorption of the adhesive and the substrate
- Tooling method

Always be mindful of water levels!

- Adding Water to the grout or providing moisture through environmental condition will result in a lighter grout colour. (N.B. any factor that affects the rate of evaporation of water from the grout surface will also affect the grout colour.)
- High Humidity levels will cause a lighter colour to the grout.
- Always maintain consistent water and latex dilution ratios as stated on the packaging (Datasheets may also be downloaded from www.instarmac.co.uk)
- Cleaning of the grout after it has started to dry will result in a light appearance to the colour.
- Utilising cut tiles or ones with a variation on the glazing pattern and a porous surface may lead to variations.
- Tiles, which vary in absorption, will yield a variable grout colour. (Utilise a polymer-modified grout to reduce this problem).
- Prevent efflorescence by keeping the grout surface free of ponded water or dampness.
- Never over water product during the mixing process or add water to a mix, which has started to go off.
- You may treat efflorescence with chemical cleaners, but be sure to follow the manufactures directions and always follow correct health and safety procedures whilst utilising chemicals. (We would not highly recommend the use of chemical abrasive cleaners)

Note: Efflorescence is a crystalline deposit of alkaline salts, which can be found on the surface of cementitious materials. The formation of the whitish powder or crust on the surface of efflorescing bodies, as salts, etc.

Common Variations of Grout Surface colour chart.

Dark appearance to grout colour can be due to:
• Porous/Permeable tile (Non Vitreous)
• Low Humidity
• Having a dry mix or late finishing process
• Deep joints
Light appearance to grout colour may be due to:
• Non-Porous/Impermeable tile (Vitreous such as Natural Stone/Slate/Porcelain)
• High Humidity
• Over watered mix/early clean up (when the material is still wet)
• Shallow joints

For further information please contact Instarmac Sales on 01827 872244.