TECHNICAL BULLETIN – TB048

APPLICATION TRICKS WITH ARDEX EG15 EPOXY GROUT

JULY 2024

INTRODUCTION & SCOPE

This bulletin provides advice on using ARDEX EG15 EPOXY GROUT and offers suggestions, solutions, and explanations for typical site situations.

These issues are normally a result of unfamiliarity in handling this type of grout. Experienced tilers that have grouted with sand/cement grouts may have difficulty in handling epoxy grouts unless they are shown the new application methods required to handle these products. The tiler is encouraged to perform trials on unfamiliar tiles and to establish agreed appearance standards with their clients before embarking on any large application.

ARDEX EG15 EPOXY GROUT

ARDEX EG15 EPOXY GROUT is a 100% solids chemically reactive epoxy that is intended for use in commercial and industrial grouting applications where the demand for physical and chemical resistance is critical. These areas include hospitals where tiles are exposed to high concentrations of biological contaminants, followed by cleaning agents that are required to return the surfaces to hygienic conditions. Industrial applications in chemical plants provide exposure due to spillage of volatile solvents or acidic or alkaline environments that make cement mortar grouts impractical due to their deterioration, reaction, or absorption. It also finds applications in domestic environments such as swimming pools and bathrooms where the customers want a premium performance solution to grouting in showers.

In addition to using the personal protective equipment outlined in our literature, a 100% epoxy is used to grout tiles, so the application requires changes in work practices in the areas of application methodology, cleaning of the joints, and handling of the chemical components.

HANDLING THE CHEMICALS

COMPONENTS

The ARDEX EG15 EPOXY GROUT* is mixed in the volume ratio of

2 parts of Part A—resin

1 part of Part B - hardener and

5-7 parts of the Part C filler.

Please note that the ratio in some literature can appear different if it refers to weight measures because there is a difference in the bulk density of the powders.

The resin is mixed first, and then the powder is added. Mixing is done with a power drill and mixing paddle.

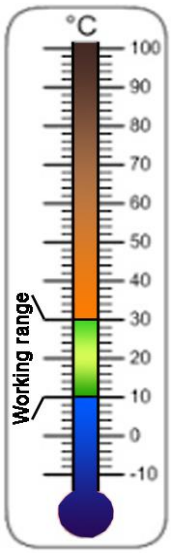
Mixing the combined Parts A+B resins and then adding the filler powder.

Mixing in the filler powder

TIP: It is important to mix the resin first before adding the powder. This ensures that the two resin components are correctly combined to react.

*EG15 supersedes Abapoxy in most applications.

The minimum application temperature limit of 10 degrees centigrade can be attributed to two factors.



Firstly, below this temperature, the reaction of the hardener and resin will stop. This is usually not a problem, provided the temperature of the substrates eventually rises above this value to enable the reaction to reach completion.

Secondly, the viscosity of the Part A compound and Part B hardener will increase dramatically (i.e., become less fluid), making the components difficult to handle and mix.

If insufficient filler is added, we could see slumping in larger vertical joints or slow slumping in incompletely filled floor joints that appear as concave surfaces. The incomplete addition of all the filler will make it much harder to clean the surface of the tiles from excessive epoxy, which will clog the sponge or scouring pad.

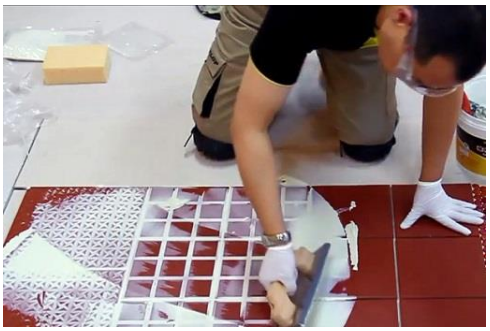
When working at low temperatures, the solution is to warm the Part A and Part B containers in warm water before mixing and ensure that the Part C powder is warmed by either keeping it indoors at 23°C before use or letting it warm in the bag in the midday sun before mixing. In some cases, it would be wise to wait until the day warms up before mixing and application to ensure that the substrate temperatures reach 10˚C.

At temperatures above 30°C, the pot life of the mixed epoxy begins to shorten quickly, and the material becomes more difficult to apply to the joints. The materials should be maintained at 23°C to optimize the 60-minute pot life. Application is best managed with enough material mixed to complete 1 to 2 square meters at a time.

WARNING—Bulk quantities of the grout left in the bucket react rapidly and develop significant self-heating. This becomes a self-sustaining reaction, and the grout hardens rapidly in the container.

APPLICATION METHOD

Experienced applicators have successfully applied the compound using a flexible metal trowel, spatula, gauging trowel, or caulking gun.



TIP: *The installer must always check the cleaning effectiveness of tiled surfaces before full-scale application to establish appearance standards*.

The key difference between epoxy and cement-based grout is that the material is much stickier. This stickiness increases during cure, making it harder to fill the joints. Due to its slower initial set compared with conventional grouts, this can result in sagging.

Also, heat is generated as the curing reaction proceeds between Part A & B. If the mixed epoxy is left in the mixing bucket, the heat promotes faster curing and reduces working time, making it difficult to fill the joints.

The sticky nature makes it harder to remove from the surface of the tile and requires positive tooling pressure to force it to flow to the bottom of the tile joint. This effect can be minimized by ensuring the correct amount of filler powder is used in the mix, using a drill mixer, and emptying the mixed grout onto a flat board to reduce heat build-up.

The solution to the application includes the placement of the epoxy directly onto the joint without spreading it across tile surfaces as you would with a cement-based grout. This will reduce surface contamination but require the applicator to actively work the material into the joint using a spatula to ensure full joint fill. In wider joints greater than 4mm, good success has been achieved using a caulking gun to apply the material into the joint. Ensure that the nozzle of the caulking gun is moved in the direction of the applied bead to ensure full joint fill. Tooling of the joint should always take place to force the material into the bottom of the joint, which is required if good edge contact with the tiles is to be achieved.

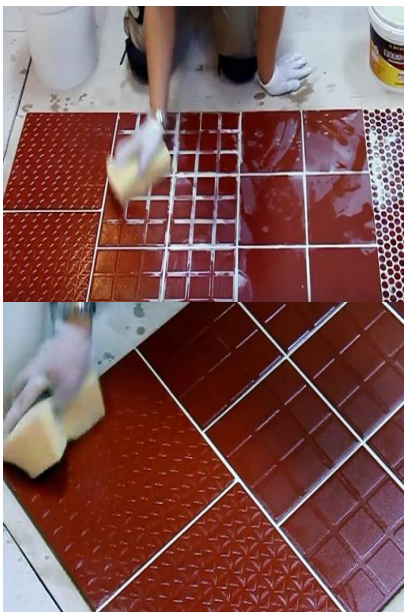
CLEANING OF THE JOINTS

Cleaning should be completed within 15 minutes of application of the epoxy grout, which normally results in grouting and cleaning one to two square meters at a time. This reduces a common complaint that arises when the material cures on the tile surface and appears to have been removed, but which is apparent as an abrasive texture when a finger is run across the tile.

Normal cleaning involves applying clean water using a refillable spray bottle to the epoxy-filled joint and leaving it for 3 to 5 minutes before using a damp scouring pad to gently scrub the tile surface in a circular motion to remove the excess epoxy.

A clean, damp sponge, a “magic cloth” (micro-fibre), or an open-weave cloth soaked in warm water is then used to remove the loosened grout from the tile surface (soak the cloth first to remove any unfixed dye).

The grout joint can then be smoothed using a clean sponge or ‘magic cloth,’ it should be frequently rinsed in clean water to reduce epoxy clogging. Continuously sponging or dragging a damp towel across the tile surface removes the remaining residue. Do not flood the grout lines; use as little water as possible to clean them.



TIP: A clogged sponge, ‘magic cloth’, or scouring pad will drag partially reacted epoxy grout out of the joints and deposit residue on the surface of the tiles. To prevent epoxy residue build-up, wash the sponge and scouring pad with a small amount of household detergent in clean water.

***TIP**: Try and wrap a tile or straight edge with a damp towel in order to create a flat surface that can be used to remove remaining residue. There will be fewer tendencies for creases in the towel to dig into the joint.*
*A scouring pad used with a bit of household detergent or methylated spirits (can still remove epoxy smears that have been on the **tile surface** for a few hours. Do not get undiluted liquid on the grout lines.*

***TIP**: To remove an epoxy smear that has cured for 24hours from the tile surface try using a more aggressive product paste such as proprietary PAINT STRIPPER, which contains a high concentration of Methylene Chloride solvent (also called Dichloromethane). This paste can be spread directly onto the surface of the smear and left for several minutes until the epoxy smear softens and then the paint stripper must be wiped off the tile. Repeated applications may be required to remove all trace of the epoxy residue. Immediately place all sponges or wash up rags in clean water to neutralise the paint stripper and thoroughly rinse the tile finish after the epoxy residues have been removed. This tip may be less effective on porous tile surfaces. Always test a trial area before application of cleaning solvents to verify compatibility with the tile type and refer to the manufacturer’s product safety information for handling.*
WARNING—Some porcelain tiles have seal coats or other treatments on them that interfere with the performance or cleaning of epoxy grouts. Inquiries should be made with the tile manufacturer concerning suitability of epoxy grouts.

GLOSSARY

Bulk density– This term means the weight per unit volume. Since powders are not heavily compacted and contain trapped air, the apparent density is lower than the true density of the component itself.

Curing- Where Parts A and B react together to form a new crosslinked polymer plastic. Complete curing is when all available materials have been reacted.

Epoxy resin– A two-part thermosetting synthetic polymer resin based on an epoxy base and an amine hardener. These polymers are a type of plastic that is non-water borne. Epoxy resins are known to be skin-sensitizing, hence the need for protective gloves and aprons when used.

Filler– An inert powder is added to the resin to add body and colourant to the grout.

Methylated Spirits – Ethyl Alcohol which has been rendered undrinkable. This should not be confused with acetone or other solvents like paint thinners.

Viscosity- The technical definition of viscosity is the liquid's resistance to applied shear stress, but in layman's terms, it means thicker and harder to use or mix.

IMPORTANT
This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition, specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations, contact your nearest Ardex Australia Office.

DISCLAIMER
The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

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