

# list of icons

## description of the product



Two-pack product



Reactive two-pack product



Ready to use product



Product to use in a percentage with water



Flexible product



Quick-setting product



N° of colours available

## fitness for use



Min and max application temperature



Type of trowel



Type of use



Type of blending



Open time



Pot life



Maximum thickness



Adhesive thickness



Joint width



Depth of joint

## application conditions



Fixing on façades



For large-size vitrified stoneware



For heating floors



For industrial floors



For use in swimming pools



For use overlapped

## fields of use



External walls



Internal walls



Outdoor floors



Indoor floors



Upper roofing



Soundproofing

# substrate preparation

Only a correctly prepared substrate will guarantee a long-lasting, optimum result from both the technical aspects and as to appearance. To be perfect, the substrate must possess the right mechanical strength. It must also be made with a non-shrink technology so as to prevent cracks and other forms of imperfection.

## SCREEDS

**COMPOSITION:** The correct choice of aggregates (sand) becomes a decisive factor when quick-setting screeds of the KRONOS or TIMER-2 type must be made. Comply with the instructions in the technical brief. Use of fine sand can extend the setting time by as much as several weeks. Electrowelded netting is often buried in screeds. Equally often, there is no need for it, or it is positioned badly (at the bottom) and therefore becomes useless. Remember that metal netting makes the screed elastic and is therefore necessary when the floor is subjected to flexure, such as slab floors. Netting is often used merely because it helps to prevent cracking during the weathering period, but there is a much simpler and more efficacious method involving use of FS-18 Fibers.

**BLENDING:** Pump blenders are now commonly used as they are convenient and speed up the job. However, they can become problematical to use when quick-setting products like TIMER-2 are employed, particularly when the weather is hot. Blending in a concrete mixer is a more delicate job, since the cement and aggregates often separate in mixtures with the consistency of screeds, leading to the formation of ball-shaped lumps, which spoil the final finish. This can be avoided by proceeding in the following way:

1. pour in all the water required for the mixture
2. add 70% of the aggregates
3. add all the binder
4. allow to blend for a couple of minutes with this plastic/fluid consistency
5. add the remaining 30% of the aggregates and pour out after a few seconds.

**FIXED OR FLOATING SCREEDS:** It is essential to insert a steam barrier (e.g. a sheet of polyethylene) between the screed and the layers underneath, but only if parquet is to be subsequently fixed. By and large, it is always better to opt for the floating screed method as, being detached from the structure, the floor is less liable to stress of the structural type. Remember that in this case, the screed must be at least 4 cm thick. Failing this, the screed will no longer be self-supporting and could yield and crack in the event of accidental loads (scaffolding, lift truck traffic, etc.). If the screed must be less than 4 cm thick, it must be fixed (glued) to the substrate. To do this, the REPAIR product can be brushed on the surface or a liquid mortar prepared, formed by one part in volume of TC-LAX diluted with one part water to which Portland cement should be added in order to obtain a viscous paste that can be easily applied with a brush. The screed must then be cast over the liquid mortar or REPAIR while they are still fresh. It is essential to position compressible material 4-6 mm thick against all vertical elements (pillars, walls, steps, etc.) up to at least the same height as the screed. This must be done with both floating and fixed screeds. If work must be interrupted for more than an hour while the layer is being applied, insert iron netting into the last 15-20 cm of the already applied layer, allowing another 15-20 cm to project. This will allow the product applied successively to form a single block with the previously applied material. If the tiles are fixed on a cement-based substrate, the degree of humidity is not important. On the other hand, it is of fundamental importance if the tiles are fixed on gypsum-based screeds or plastered surfaces, as shown in the table below. In these latter cases, it is advisable to use an electric hygrometer to measure the degree of humidity and identify the damper zones. A sample must be taken of these, through the entire thickness of the tile foundation, after which a carbide hygrometer must be used to measure the humidity rate.

## JOINTS

Comply with the indications given in the current standards for details about where these must be made (UNI 8381 at the present time). The only instructions we can give in this brief introduction, is that it is essential to strictly comply with these fundamental technical instructions when the horizontal substrates are prepared.

## PLASTERED SURFACES

### FOR FIXING CERAMIC OR NATURAL STONE TILES ON OUTDOOR FAÇADES:

Since the operation is so delicate, it is inadvisable to prepare the plaster in the building site, as it is the mason bricklayer who is left with the task of batching the cement, evaluating the quality of the aggregates and water used for the mixture. Premixed plaster is much more reliable and is also easier to apply, since a plaster sprayer can be used. Thanks to their additives, these products also create fewer problems when the application conditions are less than optimal. Ask the supplier for cement-based plaster that can be clad with heavy material (ceramic or stone), with a compressive strength of not less than **8 MPa** and **0.7 MPa** capacity for bonding to the substrate. Plaster netting must be included in all changes of structure and must be joined to this latter with corrosion-resistant elements. The plaster surface must be left rough. Unless different instructions are given by the manufacturer of the plaster product, the plastered surface must be left to rest for at least 3 weeks before the tiles can be fixed.

## SKIMMING PLASTERS

**HOW TO CLEAN THE SUBSTRATE:** Remove all traces of dirt, oil, grease, wax and cement-based mortar. Also remove all dust and/or detachable parts just before applying. It is very important to make sure that there is no rising humidity in the walls. In this case, the tiles can only be fixed after the cause of the water in the wall has been eliminated and any saline bloom removed.

**DIAGNOSIS:** if the substrate is new, it is very important to know exactly how it has been weathered. This may be expressed in days or residue humidity, depending on the nature of the actual substrate itself. The following table lists the more frequent cases with their relative ageing periods, ideal for levelling or fixing tiles with cement-based products. In the case of parquet or resilient materials, the residue humidity in all cement-based screeds must not exceed 2%. Cement-based surfaces must be thoroughly wetted with water before they are skimmed or levelled. It is inadvisable to do this if parquet or resilient materials are to be applied. In this case, it is better to apply a coat of PRIMER-T or PRIMER-101.

SUBSTRATE	MINIMUM TIME TO WAIT BEFORE FIXING	MAX RESIDUE HUMIDITY %
Kronos	24 h	–
Timer-2	4 h	–
Cement-based screeds	4 weeks	–
Cement-based plaster	3 weeks	–
Concrete	3 months	–
Anhydrite screeds	-	0.5
Gypsum based plaster	-	0.5

## WHAT TO DO IF THE SUBSTRATE IS

**CRACKED:** “cracked” surfaces present a crazed effect which is not particularly worrying as it only involves the superficial part of the substrate and is not “active”. In other words, the surfaces are not, and will never be liable to movement. No preventive action is required in these cases. As a precaution, fiber glass netting can be buried in the first coat.

**SPLIT:** “splits” are more evident than in the previous case. Their size varies from a few tenths to various millimeters and they involve most, or all of the substrate layer. They change in size as the seasons change or the humidity rate varies. It is therefore essential to plug them once and for all with REPAIR (consult the technical brief for the application procedure).

**CRUMBLING:** to find out whether a substrate has crumbled, just scratch the surface with a nail. The nail must not scratch anything off the surface. The scoring mark must be clean-cut. Sometimes, mere wiping with the hand will remove dust that is very harmful in the case of skimming, even though it only involves the surface layer. Here again, it is essential to take precautionary action. Use TC-MAS stabilizer to restore the substrate’s consistency (see technical brief for the application procedure).



# waterproofings

Preparation of the substrate in accordance with precise criteria and using specific materials, is the starting point for a perfect final result. To achieve this, strictly comply with the instructions in the individual technical briefs when it comes to positioning the sealing tape and reinforcing mesh, when required.

## HOW TO PREPARE THE SUBSTRATES

**CRACKED:** “cracked” surfaces present a crazed effect, which is not particularly worrying as it only involves the superficial part of the substrate and is not “active”. In other words, the surfaces are not, and will never be subject to movement. No preventive action prior to application of the waterproofing product is required in these cases.

**SPLIT:** “splits” are more evident than in the previous case. Their size varies from a few tenths to various millimeters and they involve the entire substrate layer. They move as the seasons change or the humidity rate varies. The splits must therefore be plugged with REPAIR (consult the technical brief in the “Substrate Preparation” Technical Booklet for the application procedure) in order to make the substrate compact. REPAIR cannot be used if water is infiltrating through the splits. In this case, the split should be slightly widened and then filled with BLITZ-R quick-setting cement (consult the technical brief for the application procedure).

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# bonding agents and adhesives

Adhesive creates bonding between the substrate and cladding material. The adhesives presented here have different characteristics to suit the different requirements of the substrate, the tiles, the thickness required and the type of use envisaged. All adhesives possess features established by the strictest international directives governing quality and safety. Before fixing tiles, it is always necessary to proceed with a few tests.

## HOW TO PREPARE THE SUBSTRATES

**CLEANING:** substrates that must be levelled or on which adhesive must be applied must always be perfectly clean, free from dust and crumbling parts. If the substrate consists of old flooring materials, tiles, rubber, linoleum and similar products, it is very often impossible to remove them and the new floor surface must be laid on top. However, before this can be done, the substrate must be thoroughly cleaned with the right sort of product. Use an alkaline degreasing product like Det-Basic to remove dirt of an organic kind, such as oil, grease or wax (consult the relative technical data sheet). Traces of cement, gypsum, scaling or the residues left by previous operations can be removed by washing with Det-Acido scale solvent (consult the relative technical data sheet). Many of Technokolla's class C2 adhesives can be used for gluing new ceramic tiles on to an old floor surface. However, it is always advisable to treat the old ceramic tiles with Primer-101 before laying the new ones. This will increase the capacity of the adhesive for bonding to the old floor and will make sure that nothing is able to shift.

**DIAGNOSIS:** If the substrate is old, it is essential to assess its stability and compactness. If it consists of old tiles, make sure that they are perfectly bonded to the surface. The ageing period of new surfaces must be known (expressed in days or residue humidity, depending on the nature of the actual surface itself). The more frequent cases with their relative ageing periods are listed in the table below.

SUBSTRATE	MINIMUM TIME TO WAIT BEFORE FIXING	MAX RESIDUE HUMIDITY %
Timer-2	6 hours	-
Kronos	24 hours	-
Cement-based tiles	4 weeks	-
Cement-based plaster	3 weeks	-
Concrete	3 months	-
Anhydrite	screeds	0.5
Gypsum based plaster	-	0.5

## WHAT TO DO IF THE SUBSTRATE IS

**CRACKED:** "cracked" surfaces present a crazed effect which is not particularly worrying as it only involves the superficial part of the substrate and is not "active". In other words, the surfaces are not, and will never be liable to movement. No preventive action is required in these cases. As a precaution, fiber glass netting can be buried in the first coat.

**SPLIT:** the "splits" are more evident than in the previous case. Their size varies from a few tenths to various millimeters and they involve most or all of the substrate. They move as the seasons change or the humidity rate varies. It is essential to plug them with REPAIR. (consult the technical brief for the application procedure).

**CRUMBLING:** scratch the surface with a nail. No material should flake off as it passes. The mark left should be clean. Sometimes dust can be removed by the hand alone, something that will impair the levelling process: it becomes inevitable to take action. Use TC-MAS strengthener to stabilize the substrate (consult the technical brief). Make sure that the surface has not warped owing to hygrometric shrinkage. If this is the case, it is unsuitable for tiling. Small localized hollows (no more than 5 mm thick) or gravel pockets in the case of concrete, can be levelled with the adhesive before the

tiles are fixed. If thicker layers are required, apply RASO or GAP, respectively 24 h and 6 h before fixing the tiles. Plastered surfaces must possess a mechanical strength that makes them suitable for tiling (at least 3 MPa indoors and 8 MPa outdoors) and must be rough, not smoothed. There must be no rising humidity on the walls to be tiled. Tiles may only be fixed after the water has been eliminated and the saline bloom removed.

## **FIXING OPERATIONS**

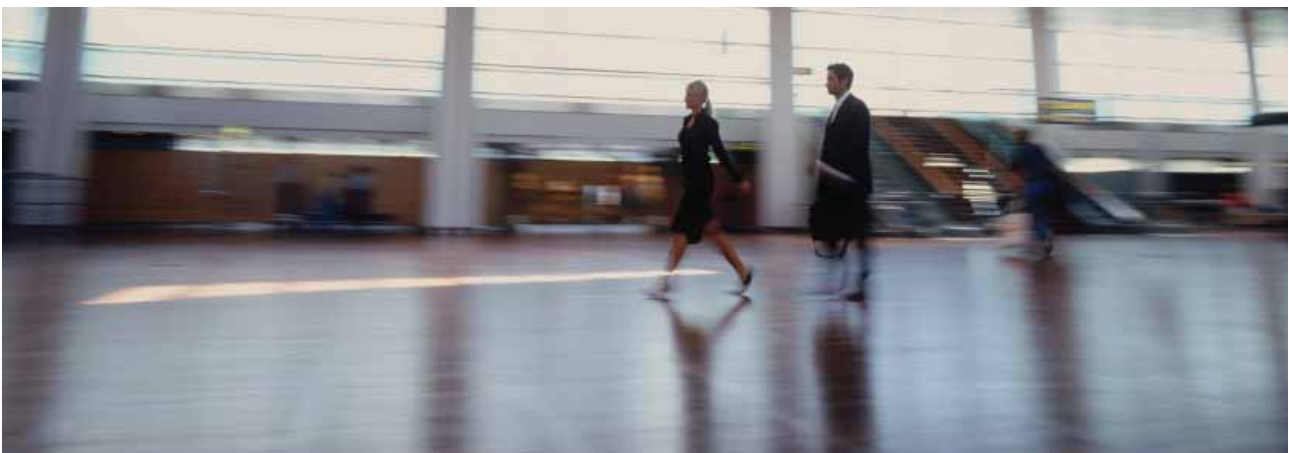
The adhesive must first be applied with the smooth part of the trowel and then with the serrated part. This method ensures a complete contact with the substrate and allows the pot life and adjustability of the adhesive to be used to the best advantage. The trowel used must always have the right type of serration. Always check to make sure that a surface film does not form on the adhesive when applied. If this happens, just pass the trowel over it again with a little fresh product. It is always better to check the percentage of adhesive/tile contact by removing a tile after having fixed and bedded it. It is advisable to apply a primer that reduces the degree of absorption if the substrate is particularly absorbent.

Double spreading is necessary when extruded materials are fixed (cotto tiles, split-tiles, tiles measuring more than 30 x 30 cm) to ensure that an unbroken, homogeneous coat of adhesive is applied under the tiling material. The “maximum adhesive thickness” value given in the briefs refers to the layer of adhesive that may remain under the tile after it has been bedded in its final position. Comply with the structural joints. Fractioning joints must be allowed for on surfaces exceeding 50 m<sup>2</sup>. It is always advisable to allow for a gap of at least 3 mm between the tiles.

## **MECHANICAL ANCHORING OF TILES LAID ON FACADES**

Often, when the tile format is larger than 2100 cm<sup>2</sup> (formats measuring more than 45 x 45 cm), they must also be fixed with a “mechanical anchoring” system as well as being glued like the smaller formats.

This method ensures that each individual tile is fixed to the structure of the building while also being free to slide in the lateral direction so as to prevent it from opposing the normal dimensional variations to which it is subjected as the temperature changes. On outdoor façades, the temperature can even rise to as much as 80°C. This is why the adhesives used for laying >2100 cm<sup>2</sup> formats must be the class C2 S1 sort, as established by standards EN12004 and EN12002, even when they are applied with the combined method (adhesive and mechanical anchoring). When the mechanical anchoring method is used, the maximum format size limits indicated in the respective technical data sheets can be increased, although the many variables involved must be carefully considered. For this reason, it is advisable to contact our technical service staff.



# groutings

# and sealants

The joints between one tile and the next have a precise function when it comes to the technical and visual aspects. From a technical point of view, the gaps compensate for the effects of hydro-thermal expansion, which may cause tension between the cladding and the substrate as time goes by. When it comes to the appearance of the surface, the joints minimize any defects in the size and squareness of the tiles and, if coloured, make the entire surface more attractive.

## **PREPARATION**

The surface to be grouted must be perfectly clean, and the joints free from excess tile adhesive. If polished vitrified porcelain stoneware or natural stone must be grouted, it is essential to test a small area to make sure that it is cleanable. By and large, it is better to avoid using grouting in a colour that evidently contrasts with the tiles (e.g. black on white) with this type of cladding. It is advisable to dampen the tiles slightly before grouting in warm weather, especially if twice-fired tiles are being grouted. Bear in mind, however, that excess water in the joints can lead to various problems, for example: differences in colour between one area and another.

## **HOW TO PREPARE THE MIXTURE**

It is vital for the paste to be lump-free and uniform in colour. Use perfectly clean tools and a low speed blender (approx. 500 rpm) when preparing the mixture. It is always advisable to use TC-STUK latex instead of the water to blend cement-based grouting compounds if the flooring is subjected to intensive traffic, on elastic surfaces or when applying to façades or swimming pools.

## **GROUTING WITH CEMENT-BASED PRODUCTS**

Apply the product with a suitable rubber applicator, and make sure that the joints are filled completely. Wipe off any excess material with the edge of the applicator. Once the grouting begins to harden, the surface can be wiped clean with a clean, damp sponge. After this, the joints should be homogeneous. Any traces of grouting left on the tiles can be removed easily the next day using a soft, dry cloth. If TC-STUK is used instead of the water, this operation must be done immediately after the surfaces have been cleaned with a sponge.

## **HOW TO OBTAIN A HOMOGENEOUS COLOUR FOR CEMENT-BASED GROUTING**

A whitish layer, that mainly consists of calcium carbonate and is commonly called bloom, sometimes forms on the surface of grouting made with cement-based materials. Bloom is caused by many factors that may interact with each other as the grouting dries.

The water used for the mixture is one of these, and becomes a harmful factor if too much is used or when various mixtures are prepared with different amounts of water.

The drying time also affects the colour shade to a considerable degree, as it is influenced by the temperature and humidity of the air, by the residue humidity in the materials used for fixing, such as adhesives, or substrates that are not yet fully dried.

Our advice is: dose the water used for the mixture in compliance with the instructions on the pack; avoid making lots of different mixtures; never stop grouting a room halfway and then continue with it the day after; always wait until the substrate and adhesive have completely dried before grouting.



# fixing parquet and resilient materials

Research by Technokolla has led to the creation of an innovative range of products for fixing parquet and other special materials, like PVC, rubber and linoleum. The entire range is formulated in compliance with the most pioneering technologies and has been tested according to the most selective criteria.

## HOW TO PREPARE THE SUBSTRATES

**CLEANING:** remove dirt, oil, grease, wax, traces of cement-based grouting, adhesive residues (if resilient cladding is removed). All dust and/or crumbling parts must be removed just before application.

**DIAGNOSIS:** It is essential to insert a vapour barrier [e.g. a sheet of polyethylene] between the screed and the layers underneath. If the substrate is new, it is very important to know exactly how it has been weathered. This may be expressed in days or residue humidity. The more frequent cases with their relative ageing periods are listed in the table below.

SUBSTRATE	MINIMUM TIME TO WAIT BEFORE FIXING	MAX RESIDUAL HUMIDITY %
Timer-2	24-48 h	2
Kronos	10-15 days	2
Cement-based surfaces	28 days	2
Concrete	3 months	2
Anhydrite screeds	-	0.5

To measure the humidity in the tile foundations, it is essential to use an electric hygrometer to identify the damper zones. A sample must be taken of these, through the entire thickness of the tile screed, after which a carbide hygrometer must be used to measure the humidity rate. Apply PRIMERFIX if the percentage of humidity exceeds the values given above [see technical brief]. Make sure that the surface is not split or crumbling. Small hollows in the surfaces must be levelled. In this case, use PLAN-10 or PLAN-30 respectively 24 h and 72 h before fixing the materials. This operation is not recommended on anhydrite-based substrates. It is very important to make sure that there is no rising humidity in the surfaces to be clad. In this case, the flooring materials can only be fixed after the cause of the water being present has been eliminated.



# bioecological refurbishing and dehumidifying products

The porosity of materials, the disintegrating action of freezing and thawing cycles, the rusting and corroding processes to which the reinforcing iron is subjected, damage from sulphates, crumbling caused by aggregate alkaline substances and damage caused by fire are amongst the main causes of deterioration in buildings. Technokolla's range of bioecological dehumidifying and refurbishing products efficiently protects buildings from the aggression to which all constructions are constantly subjected.





## IMPORTANT

Technokolla guarantees the quality of its products.

The information given in this technical data sheet is the result of our tests and experience.

It is indicative, as the specific conditions of each job site and application cannot be foreseen.

**You are advised to evaluate the application methods case by case, bearing in mind that our Technical department is at your disposal for any further information you may require.**



ISO 9001:2000



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