

HANDBOOK

for the surface
treatment of concrete







HANDBOOK

for the surface
treatment of concrete



HANDBOOK FOR THE SURFACE TREATMENT OF CONCRETE

Compiled at Teknos, this handbook is intended to provide clients, planners and people working with concrete with information on the painting and coating of concrete walls, roofs, ceilings, tanks and basins that are in industrial use.

A concrete surface is porous, subject to wear and tear, prone to give off dust and absorb grime, and frequently exhibits a chemical-induced weathering process. The durability, compactness and ease of cleaning of concrete surfaces can be enhanced through the application of paint and coatings. Surface treatment can also enhance the overall appearance of a concrete surface.

The Teknos product range falls into the following categories:

- Coatings for metal and plastic surfaces
- Mineral coatings
- Coatings for the doors, windows and board manufacturing industry
- Coatings for the furniture manufacturing industry
- Powder coatings
- Architectural coatings

We hope that you find this handbook useful.

With kind regards

TEKNOS OY

CONCRETE PAINTING

1. CONCRETE FLOORS	8
1.1 Benefits of the surface treatment of concrete floors	8
1.2 Surface preparation methods for concrete floors	8
1.2.1 Grinding.....	8
1.2.2 Scarifying.....	8
1.2.3 Shot-blast cleaning	9
1.2.4 Etching with hydrochloric acid.....	9
1.3 Recommendations for the surface preparation of concrete floors.....	10
1.3.1 New concrete floor	10
1.3.2 Old, untreated concrete floor.....	10
1.3.3 An old concrete floor with a previous surface treatment	11
1.4 Other preparatory work related to the surface treatment of concrete floors	11
1.4.1 Patching and filling work	11
1.4.2 Jointing work.....	12
1.4.3 Joining of mass layers to other materials	13
1.4.4 Rounding of corners and the application of skirting.....	14
1.5 Choice of surface treatment methods	15
2. WALL AND CEILING SURFACES	16
2.1 General.....	16
2.2 Surface preparation.....	16
2.2.1 New, untreated surfaces.....	16
2.2.2 Previously treated surfaces	16
3. VAPOUR BARRIER PAINTING.....	17
3.1 General	17
3.2 Testing of vapour barrier paints.....	17
3.3 Surface preparation before painting – the painting process.....	18
4. CONCRETE BASINS AND TANKS	19
4.1 General	19
4.2 Recommendations for surface preparation.....	19
4.2.1 New, untreated concrete surfaces.....	19
4.2.2 Old, untreated concrete surfaces.....	19
4.2.3 Old, previously treated concrete surfaces	19
5. LITERATURE.....	19
6. CHOICE OF SURFACE TREATMENT SYSTEM FOR CONCRETE FLOORS	20
7. PRODUCT CORRESPONDENCE TABLES FOR THE PRODUCTS OF TEKNOS OY, COVERING THE VARIOUS COATING SYSTEMS AND COMPLIANCE WITH STANDARD PSK 2703.....	22
8. CHOICE OF SURFACE TREATMENT SYSTEM: INTERIOR WALLS AND CEILINGS; TANKS; BASINS.....	24
9. TECHNICAL CHARACTERISTICS OF THE PAINTS	25

10. COATING SYSTEMS	29
10.1 Coating systems for concrete floors:	
L40 Epoxy coating systems	L47 Polyurethane coating and mass system
L42 Epoxy coating systems	L48 Epoxy colour sand system
L44 Epoxy coating systems	L55 Terrazzo coating system
L46 Epoxy mass systems	
10.2 Coating systems for other concrete surfaces: interior walls and ceilings; tanks; basins	
S1 Dispersion coating systems	S22 Chlorinated rubber coating system
S2 Dispersion coating systems	S23 Epoxy coating system
S3 Epoxy coating systems	S30 Epoxy coating system
S4 Epoxy coating systems	S31 Epoxy tar systems
S21 Dispersion coating systems	

1. CONCRETE FLOORS

1.1 Benefits of the surface treatment of concrete floors

Surface treatment of a concrete floor is a process of successive stages (preparation, absorption, painting, application of mass and coating). Such treatment has a positive effect on the floor's functionality and other similarly important issues.

The characteristics of a surface-treated concrete floor are affected by the correct selection of the concrete type, preparation and surface treatment combination. The benefits of a surface-treated concrete floor include:

- increased surface strength and a dust-free surface
- improved abrasion and chemical resistance
- an increased point load strength
- an improved ease of cleaning
- prevention of grime and grease absorption
- improved liquid-tightness.

SURFACE COATING OF A CONCRETE FLOOR MAY ALSO AFFECT

- electrical qualities
- roughness and slipperiness
- employee satisfaction due to the colour, luminous reflectivity and general appearance of the surface.

1.2 Surface preparation methods for concrete floors

As a first step, all traces of calcareous salt, grime, oil and paint stains should be removed from the concrete floors to be treated. Next, all laitance must be removed from the floors. Laitance refers to a layer located on top of a concrete surface, consisting of water and fine sand known as filler, which rises to the surface while the concrete surface is being floated. When laitance hardens, it forms a dense but brittle layer. The laitance layer needs to be removed in order for the primer — which is used in the surface treatment of concrete floors — to be able to penetrate the porous concrete properly. Laitance can be removed either mechanically or chemically. An untreated concrete floor should be covered with protective covers during construction-phase painting and installation. This will prevent the need to remove oil or paint stains at a later stage.

1.2.1 Grinding

Grinding is the most widely used method of removing laitance layers and other impurities.

Standard PSK 2703 differentiates between two classes of grinding: surface and in-depth grinding.

The process of surface grinding removes all fine laitance and other traces of weak surface layers from the entire floor area, revealing the fine-grained aggregate. (For more information, consult 'by 45 / BLY 7', section 3.4.7.1 - 'hionta, pin-tahionta' (grinding, surface grinding. This handbook is available in Finnish only).

Surface grinding can be regarded as a minimum requirement in the preparation of industrial facility floors.

The process of in-depth grinding removes a floor's surface layer from the entire floor area, revealing the coarse aggregate. The diameter of a coarse aggregate grain is generally taken to be one third of the maximum aggregate grain size. (For more information, consult 'by 45 / BLY 7', section 3.4.7.1 - 'hionta, pintahionta' (grinding, in-depth grinding. This handbook is available in Finnish only).

1.2.2 Scarifying

A concrete floor can be scarified using a pneumatic, electrical or internal-combustion driven milling cutter, which creates a rough surface and removes all of the laitance. This is a highly effective and efficient technique, especially for the removal of oily or grimy surfaces from old floors, and of coating films and peeling paint surfaces. When performed correctly, scarifying is carried out twice, with the second round being performed perpendicular to the first. The form and depth of the marks left by the milling cutter depend on the type of cutter (its steel type) used and the cutter's depth adjustment. Different cutters are available for different surface materials. Hard metal cutters are normally used in the scarifying of concrete surfaces. Dust nuisance can be alleviated by using milling cutter devices connected to industrial extractors.

While a rough surface provides an excellent base for coating films, thanks to the very roughness of its surface profile (0.5–1.5 mm), it is unsuitable if you intend to apply a thin coating of paint or varnish. Scarifying or, alternatively, shot-blast cleaning, is the recommended method for industrial floors which are to receive a mass coating thicker than 1 mm. This ensures excellent coating adhesion to the surface.

Scarifying can also be used to prepare surfaces for a thinner coating. However, in such cases, the scarified surface must be levelled first, either through grinding or the application of a mixture of solvent-free epoxy varnish and sand.

1.2.3 Shot-blast cleaning

Shot-blast cleaning is one of the most efficient methods of removing laitance, grime and poor surface material.

In shot-blast cleaning, steel pellets are blasted with huge force at the floor surface to be cleaned. By varying the pellet size and velocity, it is possible to adjust the efficiency of the cleaning process and the resulting surface profile.

A shot-blast device is constructed in such a manner that all loose laitance, all dust and all steel pellets can be collected using an extractor. The device separates cement dust from steel pellets, which are recycled during the cleaning process until they themselves turn to dust and are deposited in the dust container. After a shot-blast cleaning operation, a separate vacuuming process is usually unnecessary. If the floor has deep potholes or cracks, shot-blasting may leave steel pellets within such fissures. Should this be the case, all pellets must be removed before the coating is applied.

Shot-blast cleaning is practically dust-free. As a cleaning method, it is ideal for the removal of laitance from even, hard industrial cement floors. However, shot-blast cleaning may be too efficient for the removal of laitance from hand-floated cement floors. The surface profile left by the device could be too rough if the blasted floor is to be coated with only a thin paint or varnish coating. Shot-blast cleaning is also suitable for the cleaning of horizontal steel and asphalt surfaces.

1.2.4 Etching with hydrochloric acid

During etching with hydrochloric acid, the laitance layer is dissolved in hydrochloric acid, forming a calcium chloride solution and sludge consisting of filler material and silicic acid. The resulting sludge is practically neutral.

If the floor to be etched contains grease, oil, grime or a similar substance, such impurities must be removed using an emulsifying preparatory washing, before etching with hydrochloric acid is performed.

Etching is performed using a hydrochloric acid solution containing 5–10% hydrochloric acid (3–5 parts of water and 1 part of concentrated technical hydrochloric acid) by weight. When preparing such a solution, the hydrochloric acid must be poured into water in every case to prevent the solution from heating and spattering, and the solution must be prepared in a plastic vessel. This acid will corrode any metal vessels used, ruining them completely. The acidic solution will heat up as the dissolving acid releases heat. Etching with hydrochloric acid is best performed using a ready-made solution RENZA ETCHING etching liquid which contains an emulsifying agent and removes all grime, grease and calcareous salts.

Before etching, the floor must be soaked so that the worn and rough areas absorb water. This will prevent the acid from having an overly corrosive effect on any worn sections of the floor and avoid the unnecessary absorption of salt solution into the base. After soaking, rather than being covered by water pools, the floor should be evenly moist. The acidic solution is best applied to the floor using a plastic pouring can with a sieve at the lip. You can spread the solution evenly using a long-shafted broom with stiff bristles. Depending on the thickness of the laitance layer, 0.5–1.0 litres of the acid solution will be needed per square metre. As the hydrochloric acid begins to work on the floor, the laitance will dissolve with a strong foaming and boiling effect. This 'boiling' will continue for 3–5 minutes, after which the resulting neutral sludge and salt solution can be rinsed into a floor drain using plenty of water. If floor drains are unavailable, the sludge and rinsing water can be removed using a gulley sucker or a similar device.

Etching with hydrochloric acid is rarely done and is recommended only for small floor areas where grinding or other mechanical methods are unsuitable.

1.3 Recommendations for the surface preparation of concrete floors

1.3.1 New concrete floor

The best base for surface treatment is a new concrete floor. Before a coating can be applied to a new concrete surface, it must be at least 4 weeks old; the surface must have sufficient strength and its hardening process must have progressed far enough; and the drying-out process must have resulted in a sufficiently dry surface. The maximum moisture content is approximately 4 % by weight — in other words, the concrete must exhibit a relative humidity of 97 %. Standardi PSK 2703, SURFACE TREATMENT OF CONCRETE FLOORS. RECOMMENDATION FOR USE IN THE PROCESS INDUSTRY, defines the moisture content of concrete as follows:

Moist concrete: Old or new concrete with a relative moisture content higher than 97 %, see 'by 45 / BLY 7 ; Table 4.4 (available in Finnish only). Coating using normal coating materials is possible if the concrete's compression strength is at least 80 % of its planned nominal strength, or higher.

Dry concrete: Old or new concrete with a relative moisture content smaller than or equal to 97 %. Coating is possible if the concrete's compression strength is at least 80% of its planned nominal strength, or higher. For further information on the measurement of moisture, consult the book 'Betonirakenteiden kosteusmittaus ja kuivumisen arviointi' (Moisture measurement of concrete structures and assessing the progress of the drying process - available in Finnish only).

Floor surfaces with a higher moisture content can be treated using special products (see Table 3: PRODUCT CORRESPONDENCE TABLES FOR THE PRODUCTS OF TEKNOS OY, COVERING VARIOUS COATING COMBINATIONS AND COMPLIANCE WITH STANDARD PSK 2703: A NEW COATING ON MOIST OR DRY CONCRETE).

Laitance can be removed from concrete surfaces finished with steel trowelling through grinding, scarifying or shot-blast cleaning.

Hand-floated or brittle, powdery floor surfaces can be treated mechanically or chemically, in order to expose a hard cement layer with a high aggregate content. After the laitance layer has been removed through grinding or a similar mechanical method, the floor must be vacuumed in order to remove all traces of cement dust.

If curing compounds have been applied to the concrete surface, all traces of such compounds must be removed through shot-blast cleaning or an equivalent method before the coating is applied. Although curing compounds are not absorbed deep into the concrete, they form a film on its surface, hampering the absorption of surface treatment products

Various fluosilicate scaling and hardening treatments may also leave an adhesion-hampering layer on the concrete surface. Surfaces that have undergone absorption treatment must be scarified or cleaned through shot-blasting prior to surface treatment, to ensure that a clean concrete surface is exposed.

1.3.2 Old, untreated concrete floors

If a concrete floor is only superficially soiled, as an initial step it should be washed mechanically or using a similar method. The choice of detergent should reflect the nature of the grime on the floor; for example, a wet clean using a synthetic detergent, or a solvent degreasing based on an emulsifying detergent. After being washed, the floor must be carefully rinsed and wiped dry. If the floor contains traces of laitance, these must be removed chemically or mechanically. Even if the floor shows no traces of laitance, it is recommended that it be ground or treated using a similar method, to ensure the adhesion of the surface treatment product.

If any grime such as oil has been absorbed into the concrete, a mechanical washing will not be sufficient and the soiled concrete must be removed all the way down to the clean concrete substrate, through scarifying or a similar method.

If the floor surface is brittle or weathered, the fragile surface layer must be removed through grinding, scarifying or a similar method before surface treatment is begun. If the entire surface layer must be removed and a new floor cast to replace it, floor preparation methods should be chosen from among those described in section 'A new concrete floor.'

1.3.3 An old concrete floor with a previous surface treatment

If a previously treated floor must be retreated, you must determine the type of treatment agent previously applied and the state of repair of the underlying concrete before beginning retreatment.

If the old product applied to the floor has a binder that hardens through oxidation, such as epoxy ester or urethane alkyd, this will not withstand strong solvents. If such a floor is subjected to a surface treatment using soluble epoxy or polyurethane products, the old surface must be completely removed. Otherwise, the solvents in such coatings will soften the underlying old product, leading to loss of adhesion to the concrete. If the type of the old surface-treatment agent remains unknown, it is advisable to verify the compatibility of the old and new products on a small test area before beginning the surface treatment proper.

As an initial step, the old surface treatment coating must be washed to remove any impurities that might hamper adhesion. Emulsifying, solvent-based detergents have proven highly suitable for such purposes.

Before the surface treatment, the old, glossy surface must be sanded to give it a matt finish.

Any old, peeling surface treatment coatings must be removed. The most commonly used methods are grinding and scarifying, which have the additional benefit of removing any traces of laitance and all fragile layers from the concrete surface. Shot-blast cleaning is also highly suitable for this purpose. Chemical removal of a coating through the application of a paint remover is only recommended in situations where mechanical preparation methods cannot be used. After chemical paint removal, the concrete surface must be carefully rinsed and sufficient time allowed for the surface to dry prior to surface treatment.

After washing, cleaning and the removal of laitance, the surface treatment of old concrete floors is frequently supplemented by filling in any cracks and holes and smoothing the surface areas with putty.

1.4. Other preparatory work related to the surface treatment of concrete floors

Besides the above-mentioned preparatory work, floor surface treatment often consists of several other preparatory stages which vary in nature. Preparatory work often comprises the patching of holes, smoothing of uneven surfaces, jointing work, rounding of corners, construction of inclinations and other similar work.

1.4.1 Patching and filling work

Old concrete floors often have cracks and holes, which need to be patched before surface treatment can begin.

Fissures are, almost without exception, shrinkage cracks which appear during the concrete drying process but which do not widen after the concrete has fully set. Fissures are distinguished by the fact that they do not extend through the entire thickness of the floor but form a cobweb-like pattern.

Wide cracks which pass through the floor must always be widened using an angle grinder or a similar tool, and then patched. It is advisable to facilitate patching by widening the cracks to a sufficient size and to a depth of 1–2 cm. Cracks can be patched before or immediately after the application of priming varnish, using a filler compatible with the coating combination. Examples of such fillers include a solvent-free epoxy putty — for example, TEKNOPOX FILL — and a low-slump putty prepared by mixing a sufficient quantity of dry sand, with grain size of 0.1–0.6 mm, with an undiluted epoxy varnish — for example, TEKNOFLOOR PRIMER 310F — (see Figure 1).

In the case of wide cracks, it is worth bearing in mind that such cracks may have been caused by shifts in the building's foundation, or excess load. If this is the case, it is highly probable that the damage will re-emerge next to the patched area, unless the root cause of the crack is removed.

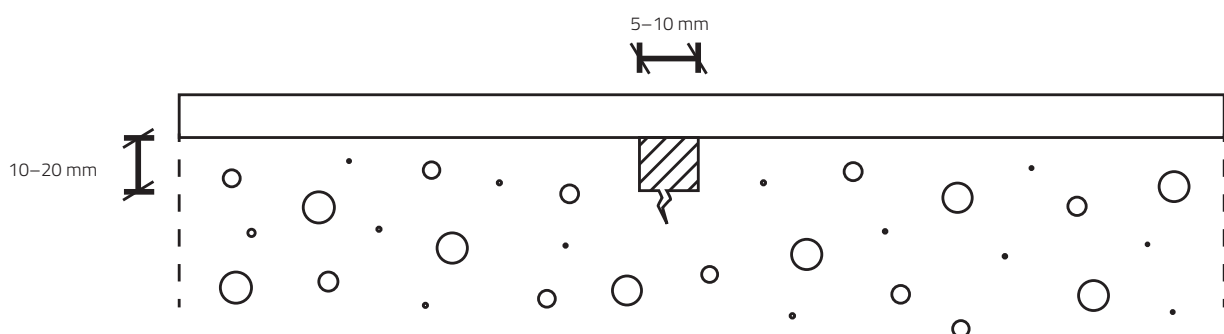


Figure 1. Widening and patching of cracks.

Holes can be patched either before or immediately after the application of a priming varnish. Small holes can be patched using a filler compatible with the coating combination. Examples of such fillers include a solvent-free epoxy putty — for example, TEKNOPOX FILL — and a low-slump putty prepared by mixing a sufficient quantity of dry sand, which contains a 0.1–0.6 mm grain size, with solvent-free epoxy varnish — for example, TEKNOFLOOR PRIMER 310F.

If the holes are large in size and more than 5mm in depth, it is advisable to carry out patching using a solvent-free epoxy varnish, such as TEKNOFLOOR PRIMER 310F, mixed with a sufficient quantity of dry natural sand with a varying grain size. Patching should be carried out as indicated in Figure 2, which depicts a hole with its edges deepened for the application of patching putty.

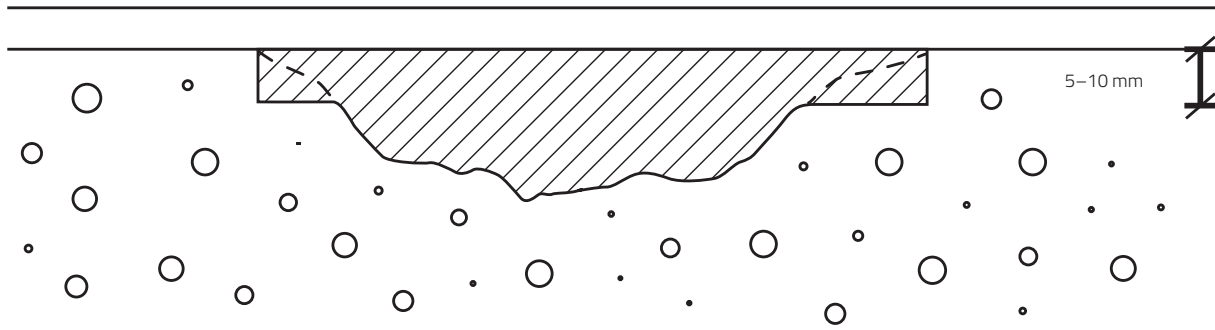


Figure 2. Patching of holes.

If a large number of small holes, cracks and rough areas occur in the floor, the entire floor can be levelled using a mix of epoxy varnish and natural sand. In such a case, the sand grain size may be 0.1 – 0.6 mm, and the amount of sand to be added to the varnish should keep it sufficiently fluid so as to allow it to fill all holes and cracks completely.

1.4.2 Jointing work

Jointing of a floor refers to the jointing of the floor’s working and expansion joints. Special attention must be paid to the tightness of working and expansion joints on floors which are subject to chemical corrosion.

Working joints are normally classified as joints which are sufficiently stiff and stationary. Jointing is commenced by opening the working joints to a width of approximately 5 mm and a depth of approximately 10 mm, using an angle grinder or a saw equipped with a diamond wheel. The joint thus widened is primed and seamed using a mix of solvent-free epoxy varnish and dry natural sand. After this, a mass coating can be applied to the joints.

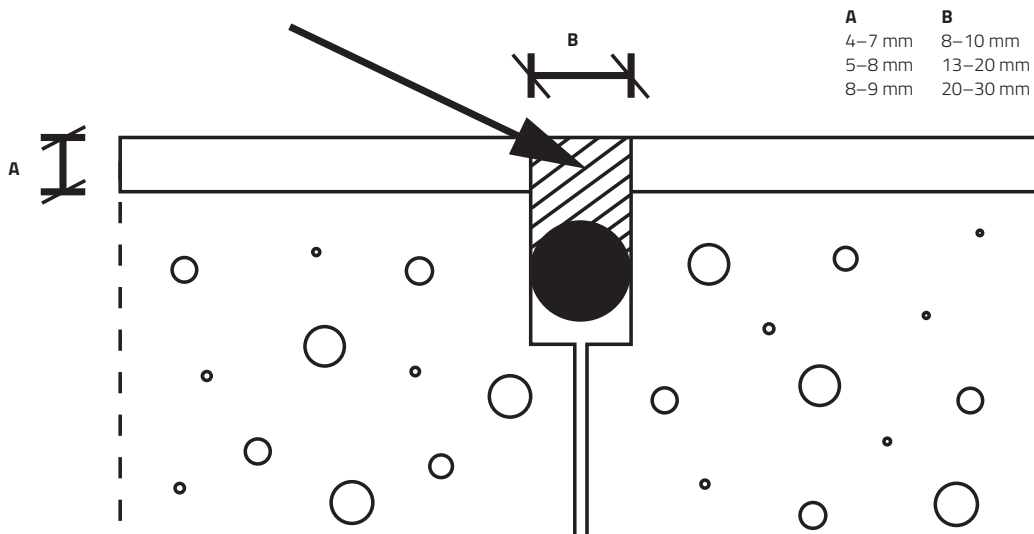


Figure 3. Seaming of expansion joints (see by 49 / BLY 10, Figure 4.2.2).
A = putty thickness, B = joint width

Expansion joints of concrete floors are normally seamed after the application of a mass coating, using a flexible joint sealing compound as indicated in Figure 3. Expansion joints are opened after the application of a coating. Naturally, this requires that the location of the joint be marked on the wall, to enable saw cutting along the joint after the mass coating has been applied.

Expansion joints are often reinforced with angle iron bars. Joining of a mass coating layer with an angle iron bar is depicted in Figures 4 and 5.

1.4.3 Joining of the mass layer to other materials

Mass layers often have to be joined to steel constructions as part of floor surface treatment. Floors may have floor drains and expansion joints reinforced with steel linings. In such cases, during the construction stage allowance may have been made for the joining of the mass layer to steel structures by ensuring that all steel parts protrude above the floor by a height equal to the thickness of one mass layer; see Figure 4.

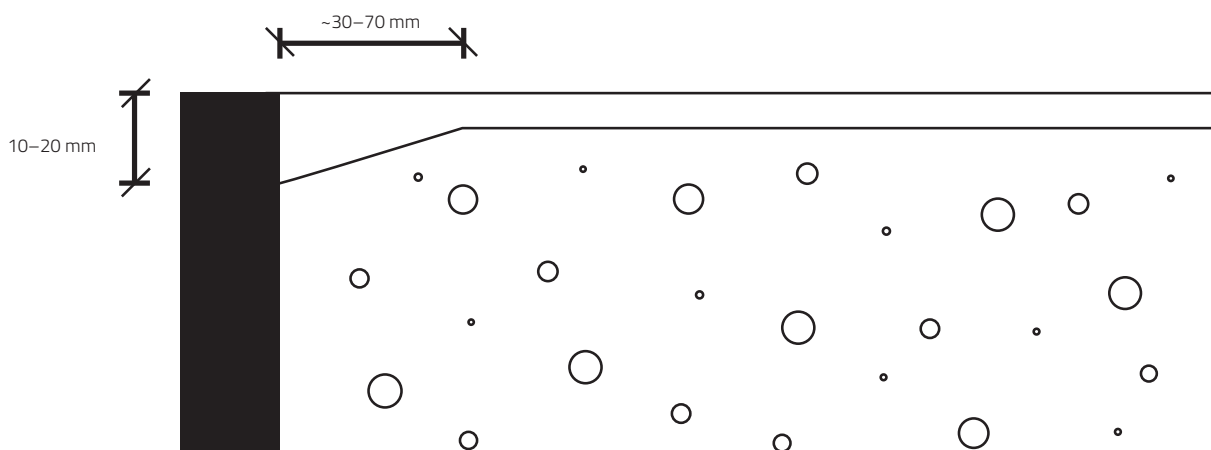


Figure 4. Joining a mass layer to steel structures that protrude above the floor.

If a steel structure is flush with the concrete surface, joining must be performed by making a bevel cut in the concrete next to the steel structure, thereby removing concrete to a depth of 10–20 mm and creating a notch which can be filled with the coating mass (see Figure 5).

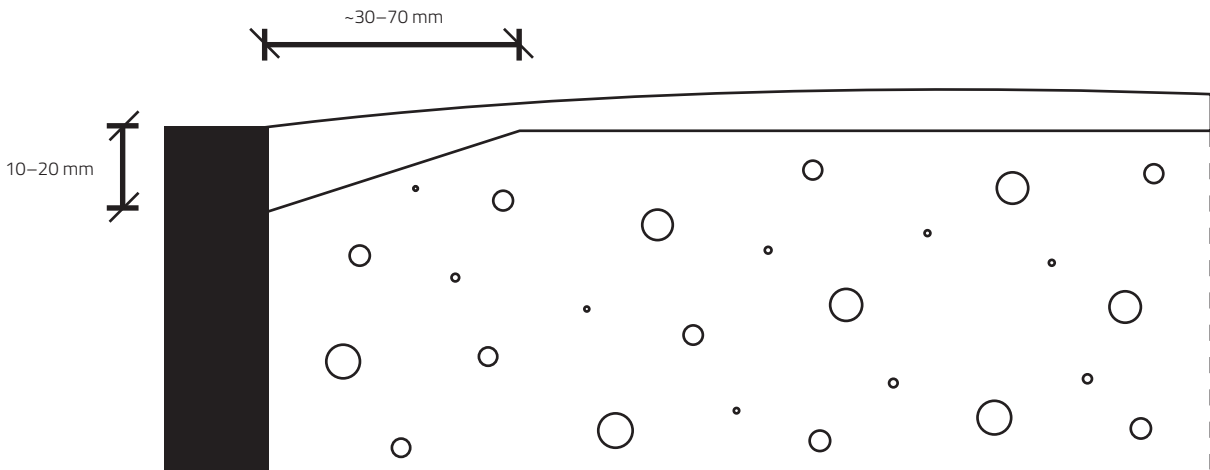


Figure 5. Joining a mass layer to steel structures that are flush with the floor level.

1.4.4 Rounding of corners and the application of skirting

To prevent wash water and other fluids from penetrating the loadbearing frame of a building through the gap between the floor and the wall, the joint between the floor and wall can be finished through an operation known as rounding of the corner. A corner is normally rounded using a mix of natural sand and solvent-free epoxy varnish. Such a mass is normally applied using a masonry trowel, the finishing touch being given using a round plastic tube or a bottle 10 cm in diameter. If a self-levelling mass is used, rounding must be performed before the mass is applied, with a thin layer of coating being applied to the corner. (see Figure 6).

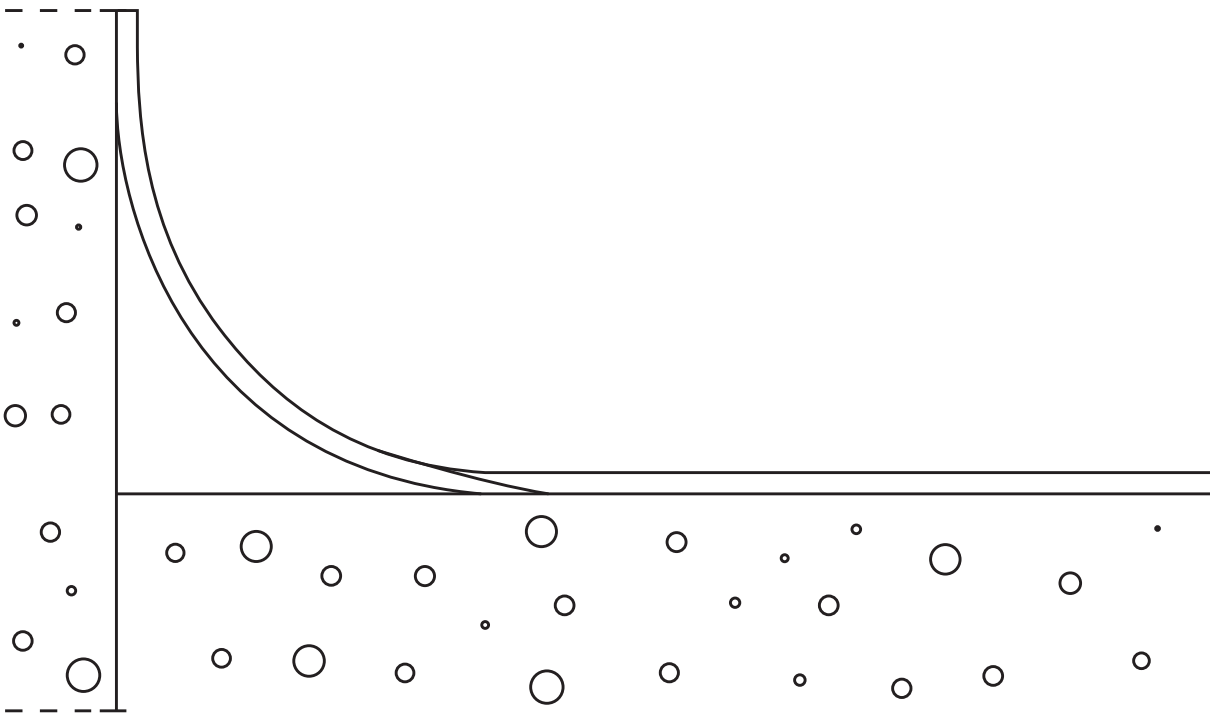


Figure 6. Coating of rounded corners.

If a mass made of colour sand is used, the same sand mix must be applied to the floor and the corners to be rounded. Rounding can be performed either before or after the application of the mass coating (see Figure 7).

Application of skirting is similar to the rounding of corners, with the exception of rounding which is omitted (see Figure 8).

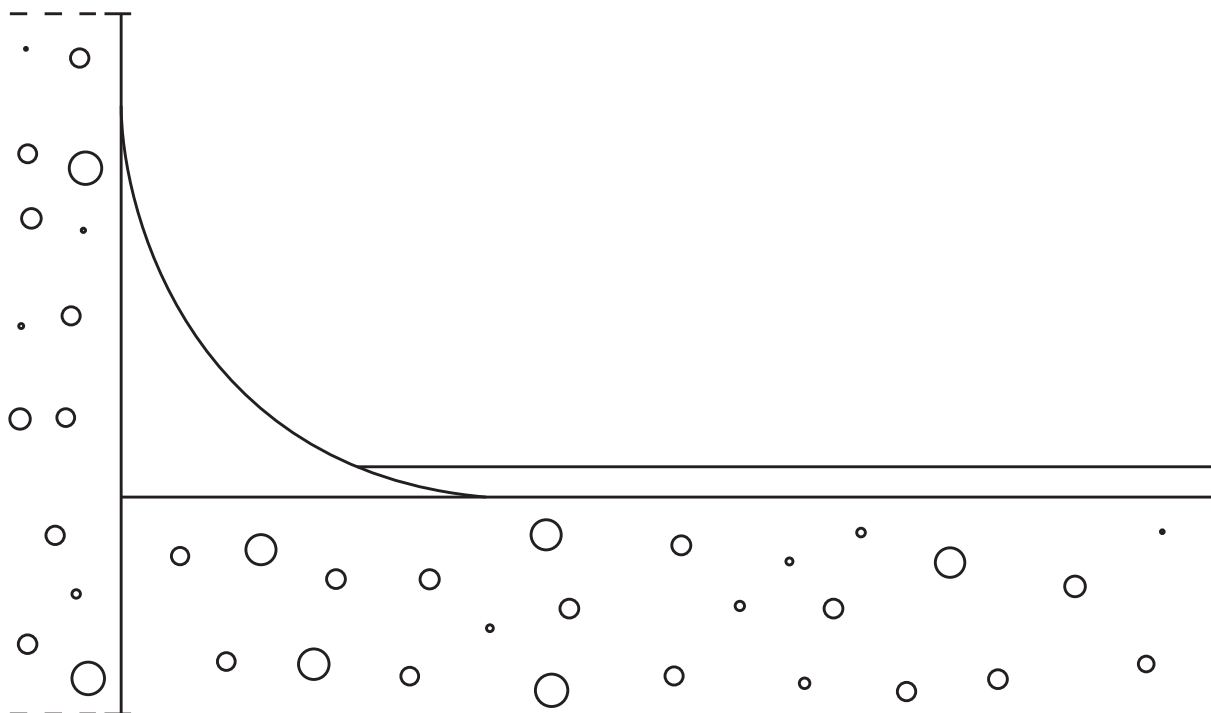


Figure 7. Rounding of corners using a mass of colour sand.

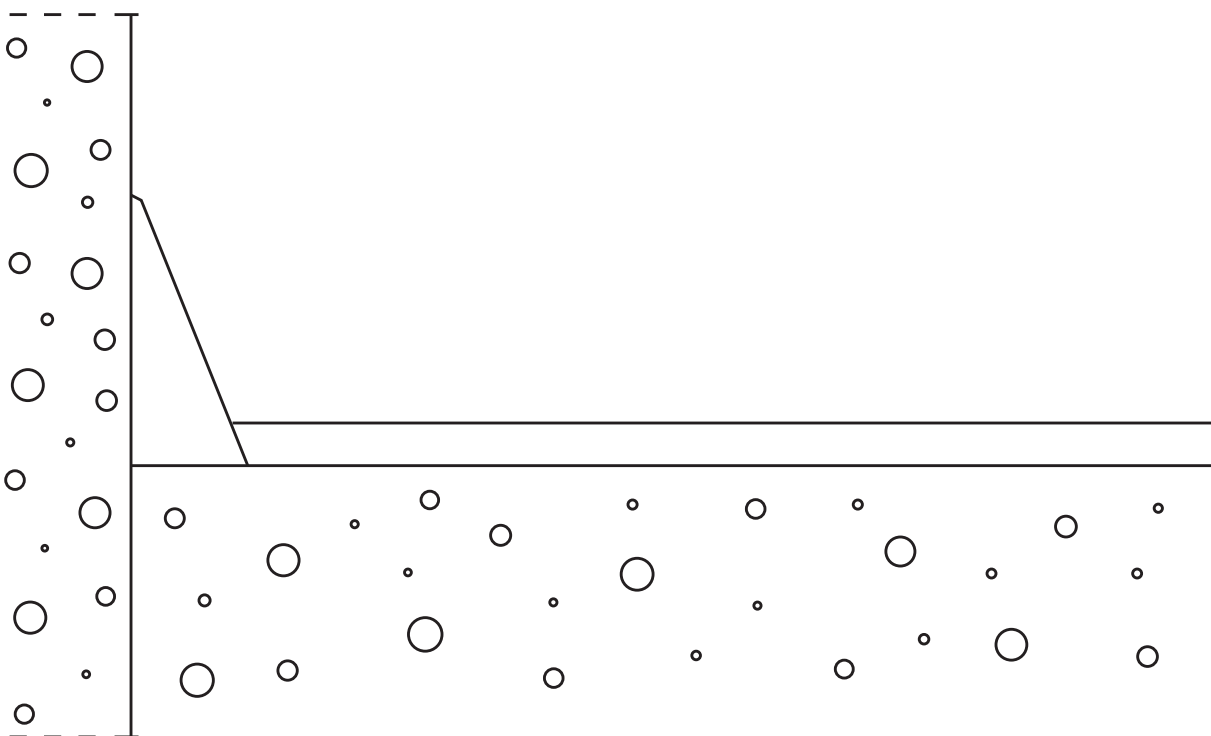


Figure 8. Application of skirting using a mass of colour sand.

1.5 Choice of the surface treatment methods

The surface treatment method to be used can be selected from among of those listed in Table 'CHOICE OF SURFACE TREATMENT METHOD FOR CONCRETE FLOORS 2013' on page 20.

2. WALL AND CEILING SURFACES

2.1 General

In industrial halls, the wall and ceiling surfaces to be painted are often made of concrete or brick, or have a plaster coating. Various plaster substrates, gypsum boards and other similar surfaces are also among the types which are frequently painted.

2.2 Surface preparation

2.2.1 New, untreated surfaces

Irrespective of the material of which surface is made, due note must be taken of the following:

- All of the surfaces to be treated must be clean. No dust, grease, loose dirt or other impurities which hamper painting must be present on the surfaces.
- Holes and cracks must be filled using a filler or putty that matches the combination of coatings to be applied.
- Rough areas must be smoothed with a filler that matches the combination of coatings to be applied.
- Any steel objects or areas visible on the surfaces to be painted must be treated with an anticorrosive paint that matches the combination of coatings to be applied.
- If necessary, the surfaces must be sanded and any dust deposited on them must be removed before coating is applied.

On gypsum board surfaces, all screw heads and joints must be levelled flush with the surface, using a light filler (SILORA LF - MEDIUM), before the sealing strip is attached. After the attachment of the sealing strip, all screw heads and joints must be levelled flush with the surface twice using an appropriate light filler (SILORA LF - MEDIUM). In rooms with a floor gully, a suitable light filler (SILORA LW - VÅT) must be used.

In wet areas, a two-component epoxy stopper (TEKNOPOX FILL) can be used as a putty and filler.

2.2.2 Previously treated surfaces

The applicability of a new treatment to an old surface must be verified before the treatment is begun. For example, it is recommended that surfaces treated with dispersion paints are not retreated with epoxy paints.

When applying a maintenance painting or repainting, due note must be taken of the following:

- All peeling and poorly adherent coating must be removed.
- All previously painted surfaces must be washed with RENSA PAINT WASHING LIQUID and rinsed carefully using warm water.
- If mould occurs on the surfaces, they must be washed with RENSA MILDEW REMOVER and rinsed carefully using warm water.
- Hard and glossy surfaces must be sanded to create a matt finish.
- Holes and cracks must be filled with a filler that matches the combination of coatings to be applied.
- If the surfaces exhibit holes and cracks deemed to be at a risk of reopening, the damaged areas can be covered with a glass fibre strip. Such strips must be levelled flush with the surrounding surface.
- Any steel objects or areas visible in the surfaces to be painted must be treated with an anticorrosive paint that matches the combination of coatings to be applied, for example INERTA MASTIC.
- If necessary, the surfaces can be sanded, with the sanding dust being removed before the next coating is applied.

3. VAPOUR BARRIER PAINTING

3.1 General

If moisture penetrates wall and ceiling surfaces made of brick or concrete, this will lead to serious structural damage. Due to repeated freezing and thawing cycles, the aggregate weathers, cracks develop in the brick outer layers and the loadbearing frame weakens. Frost damage is most common along the seams between prefabricated units and below windows. Carried by the moisture, airborne acidic impurities penetrate the concrete, reducing its pH value: the concrete is thereby exposed to carbonation. Fresh concrete is alkaline (pH 11–13), which protects the steel reinforcement in the concrete from corrosion. When the pH value is reduced, this also lowers the concrete's passive protection and, if the moisture level is sufficiently high, the steel will rust. In a loadbearing frame in particular, rusting of the steel reinforcement can have disastrous consequences.

Moisture condensing in the thermal insulation within wall elements will create cold bridges, reducing the insulation effect. Where cold bridges are located, moisture will condense on the inner surfaces of walls, causing stains, runs and, in many cases, mould. Calcareous salt build-up on exterior walls, carried by moisture, give building façades a dirty appearance.

To prevent damage of the kind listed above, wall and ceiling surfaces should be treated with vapour barrier paints.

3.2 Testing of vapour barrier paints

The vapour barrier characteristics of various coatings can be tested in a laboratory by determining the value of their total diffusion resistance, known as the PAM value (Press Against Moisture). The unit for the PAM value is (m²h mmHg/g). This will be replaced by (m²s Pa/kg) in compliance with the International System of Units. The total diffusion resistance value takes account of the thickness of the matter layer.

The PAM value quantifies the total diffusion resistance of a material. The higher the value, the more capable the material is of preventing vapour passage. 200 is generally considered the minimum PAM value for the vapour barrier painting of paper machine halls and similar buildings.

Determination of the PAM value:

Concrete disks, 10 mm thick and with one side treated with the the coating combination to be tested, can be used as test specimens. A disk coated in this way is soldered to a container containing desiccant (for example, CaCl₂ with no crystal water), forming the container's lid. This container is kept in a standard room with a relative humidity of 95 % or 70 %. The quantity of water passing through the coating can now be measured by weighing the container at regular intervals and calculating the diffusion resistance of the coating based on the results obtained from weighing.

Material	Dry coating	Diffusion resistance m ² sPa/kg	PAM-value m ² h mmHg/g	Statement by VTT Technical Research Centre of Finland
1. Concrete	10 cm	10–50 x 10 ⁹ ¹⁾	20–104	
2. Brick	10 cm	2.5–5 x 10 ⁹ ¹⁾	5–10	
3. 2 x TEKNOPLAST HS 150	200–250 µm	175 x 10 ⁹ ²⁾	360	RAT6640
4. 2 x TEKNOCHLOR 150	220 µm	137 x 10 ⁹ ²⁾	285	RAT01076
5. 1 x TEKNOPOX AQUA V TIX 1 x TEKNOPOX AQUA V	total 150 µm	77 x 10 ⁹ ²⁾	160	A4182/73
6. 1 x TIMANTTI W moisture sealer TIMANTTI 40	160 µm	111 x 10 ⁹ ³⁾	232	RAM 01432/90

Table 1. Diffusion resistance values for certain construction materials and coatings.

1) Bengt Lindberg, Aktuellt Måleri no. 9-1981

2) Measured in a relative humidity of 95 % against a humidity of 0 %.

3) Measured in a relative humidity of 50 % against a humidity of 93 %.

Diffusion resistance is affected by relative atmospheric humidity, the difference in the water vapour pressure on each side of the coated surface, and the temperature and characteristics of the material used as a vapour barrier. The hydrophilicity of a paint coating affects the diffusion resistance, particularly if the relative humidity exceeds 95 %, in which case part of the diffused water vapour may condense to form water. Table 1 presents a number of diffusion resistance values, published for certain construction materials, as well as a set of resistance values calculated for the vapour barrier products manufactured by Teknos Oy.

3.3 Surface preparation before painting – the painting process

New concrete surfaces should either be brushed or sanded, to remove any loose dust and any traces of calcareous salt. Brushing is sufficient for brick surfaces.

Old coatings and old, grimy brick and concrete surfaces should be cleaned through high-pressure washing and, if necessary, an old, poorly adhering coating should be scraped off. Wet sandblasting is also a highly effective way of removing old coatings.

After cleaning, insulation in the seams between prefabricated units and in those between window frames and window openings must be checked and, where necessary, repaired, as air gaps are one of the main avenues through which moisture enters building elements. Insulation is often completely missing at the junction between columns and walls, and in the seams between prefabricated units located behind such columns.

Before applying a coating, all cracks, holes and areas where entrapped air has left voids in the casting must be filled and smoothed. A filler type must be selected which matches the coating combination. In the case of epoxy coating combinations, an appropriate epoxy stopper (TEKNOPOX FILL) should be selected; in dispersion coating combinations, an epoxy filler or an appropriate wet room filler should be used. Some concrete surfaces cast in a steel mould may have so many entrapped air voids that the entire surface area must be filled with a filler and smoothed to ensure a tight coating.

When filling large areas completely with a filler – as a preparation for an epoxy coating system – the best choice is a mix of packaged concrete (maximum grain size 0.6 mm) and water-borne epoxy varnish (TEKNOPOX AQUA V), which is highly adhesive to concrete surfaces and can be applied using a paste-spraying gun. Detailed information on the mixture ratio and user instructions can be found in the technical data sheet for TEKNOPOX AQUA V. The surface should be finished using a wide steel trowel.

If rusty steel reinforcement wiring is exposed during the cleaning phase, such wiring must be cleaned of any rust and painted using a suitable epoxy primer such as INERTA MASTIC.

4. CONCRETE BASINS AND TANKS

4.1 General

The process industry, food processing industry and municipal water processing plants make heavy use of concrete basins, tanks and channels. By using solvent-free epoxy coatings, the chemical resistance, ease of cleaning and tightness of such structures can be enhanced. Such coatings are usually applied using an airless spray which will give concrete a tight, seamless protective coating.

4.2 Recommendations for surface preparation

4.2.1 New, untreated concrete surfaces

Laitance and any impurities can be removed through blast-cleaning. When blast-cleaning, avoid using a blasting method which is too abrasive, in order to avoid damaging the concrete layer which protects the reinforcing steel wiring.

4.2.2 Old, untreated concrete surfaces

Old concrete surfaces should be cleaned of any grime likely to impede blast-cleaning, through scraping or high-pressure washing. Laitance and any grime clinging to the porous surface should be removed through blast-cleaning. The rust must be removed from all exposed reinforcement wiring. All rust which surrounds the wiring and which has been absorbed into the concrete must be removed by chiselling it away, or through a similar method. Once exposed and cleaned, this wiring must be primed using an epoxy primer such as INERTA MASTIC or an epoxy coating normally used to coat basin surfaces.

4.2.3 Old, previously treated concrete surfaces

The suitability of the old coating as a primer on top of which a new coating can be applied must be verified before adding the new coating. Coating with poor adhesion should be removed from old, previously treated surfaces through blast-cleaning or similar methods. A durable coating with excellent adhesion to its base material should be roughened through sanding or blast-cleaning.

After sanding or blast-cleaning, all sand, dust and other impurities must be vacuumed off. Patching and levelling must be performed using an epoxy filler compatible with the coating combination.

See the coating system in question for detailed instructions.

When choosing a coating system for concrete basins and tanks, please consult Teknos Industrial Coatings.

5. LITERATURE

Suomen Betoniyhdistys r.y., Suomen Betonilattiyhdistys r.y.:
by 45 / BLY 7
BETONILATTIAT 2002 (Available in Finnish only)

Suomen Betoniyhdistys r.y., Suomen Betonilattiyhdistys r.y.:
by 54 / BLY 12.
BETONILATTIOIDEN PINNOITUSOHJEET 2010. (Available in Finnish only)

Rakennustietosäätiö:
MAALAUUS RYL 2012. Maalaustöiden yleiset laatuvaatimukset ja käsittely-yhdistelmät. (Available in Finnish only)

Tarja Merikallio:
Betonirakenteiden kosteusmittaus ja kuivumisen arviointi. 2002. (Available in Finnish only)

PSK Standardisointiyhdistys ry:
Standardi PSK 2703: SURFACE TREATMENT OF CONCRETE FLOORS. RECOMMENDATION FOR USE IN THE PROCESS INDUSTRY. 2008.

6. CHOICE OF SURFACE TREATMENT SYSTEM FOR CONCRETE FLOORS

Surface treatment systems for concrete floors 2013

SYSTEM CODE	MAALAUSS RYL 2012 treatment system	SYSTEMS AND USAGES	PRODUCTS AND TREATMENT TIMES	TOTAL FILM THICKNESS (µm)	CONCRETE PRETREATMENT (PSK 2703)	STRESS CATEGORY (PSK 2703)				
						BC1	BC2	BC3	BC4	BC5-Mec
L40	65301	EPOXY COATING SYSTEM L40a/M <ul style="list-style-type: none"> water-borne two-pack paint cellar spaces, wash rooms, moist concrete floors for light traffic 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR AQUA 110F concrete paint priming with thinned paint 1 x TEKNOFLOOR AQUA 110F concrete paint top coating 	60–100	GD1	X				
	64601	EPOXY COATING SYSTEM L40b/L <ul style="list-style-type: none"> water-borne two-pack varnish dry and moist concrete floors for light traffic, fresh concrete floor (2–3 days) 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR AQUA 110F concrete varnish priming with thinned varnish 1 x TEKNOFLOOR AQUA 110F concrete varnish top coating 	60–100	GD1	X				
	65601	EPOXY COATING SYSTEM L42/M <ul style="list-style-type: none"> solvent-borne two-pack paint industrial and car halls as well as dry industrial processing spaces and storages 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR 100F concrete paint priming with thinned paint 1 x TEKNOFLOOR 100F concrete paint top coating 	60–100	GD1	X				
L42	64701	EPOXY COATING SYSTEM L42/L <ul style="list-style-type: none"> solvent-borne two-pack varnish industrial and car halls as well as dry industrial processing spaces and storages 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR 100F concrete varnish priming with thinned varnish 1 x TEKNOFLOOR 100F concrete varnish top coating 	60–100	GD1	X				
	—	EPOXY COATING SYSTEM L44/a <ul style="list-style-type: none"> solvent-free, self-levelling two-pack coating damp spaces within pulp, paper and chemical industry, floors and storages within heavy industry 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish 1 x TEKNOFLOOR 500F epoxy coating top coating 	abt. 250	GD2		X			
L44	66101	EPOXY COATING SYSTEM L44/b <ul style="list-style-type: none"> solvent-free, self-levelling two-pack coating damp spaces within pulp, paper and chemical industry, floors and storages within heavy industry 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish 1 x TEKNOFLOOR 500F epoxy coating top coating 	abt. 500	GD2		X			
	—	TERRAZZO COATING SYSTEM L55 <ul style="list-style-type: none"> system consisting of a solvent-free coating, decorative flakes and a top coating varnish shops, laboratories, corridors 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish TEKNOFLOOR 500F epoxy coating top coating vinyl flakes strewing 2 x TEKNOFLOOR 300F epoxy varnish top coating 	400–600	GD2		X			
L55	66201	EPOXY MASS SYSTEM L46/2 <ul style="list-style-type: none"> solvent-free, self-levelling two-pack coating floors subjected to heavy strain within pulp, paper and chemical industry as well as car repair shops and floors in dry spaces within food industry 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish 1 x TEKNOFLOOR 500F epoxy coating sand mixture 2 mm layer 	abt. 2 000	GD2			X		
	—	EPOXY MASS SYSTEM L46/4 <ul style="list-style-type: none"> solvent-free, self-levelling two-pack coating floors subjected to heavy strain within pulp, paper and chemical industry 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish 1 x TEKNOFLOOR 500F epoxy coating sand mixture 4 mm layer 	abt. 4 000	GD2			X		
L46	66301	EPOXY COLOUR SAND SYSTEM L48 <ul style="list-style-type: none"> solvent-free, rubbable two-pack mass floors subjected to severe mechanical and chemical strain balconies 	<ul style="list-style-type: none"> 1 x TEKNOFLOOR PRIMER 310F epoxy varnish *) priming with thinned varnish 1 x TEKNOFLOOR 400F epoxy varnish mixture of coloured or natural sand 4–6 mm layer 1–2 x TEKNOFLOOR 300F epoxy varnish top coating with thinned varnish 	abt. 4 000	GD3					X
	—									

*) TEKNOFLOOR PRIMER 306F-01 epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity.

Stress categories according to standard psk 2703

Stress category 1)	Description / Quality grade of coating	Service interval 2)
BC1 Very low	Low mechanical or chemical stress, dry indoor production area. Coating appearance grade Ks3 or Ps3 (Maalaus RYL 2012).	10 years
BC2 Low	Light mechanical stress - e.g. foot traffic - withstands washing with water and stain removal with neutral detergents. Coating appearance grade Ps3 (Maalaus RYL 2012).	5 years
BC3 Medium	Constant medium mechanical stress - e.g. constant foot traffic and occasional forklift traffic - withstands washing with water and stain removal with neutral detergents. Coating appearance grade Ps2 (Maalaus RYL 2012).	5 years
BC4 High	High mechanical stress - e.g. constant forklift traffic and point load stress - withstands stress from splashes of process chemicals < 30 °C. Coating appearance grade Ps1 (Maalaus RYL 2012).	5 years
BC5-Mec Very high	Very high mechanical stress or warm water stress - e.g. constant heavy forklift traffic and high point load stress - withstands stress from splashes of process chemicals < 30 °C. - warm water stress 20 - 60 °C. Coating appearance grade Ps1 (Maalaus RYL 2012).	5 years

1) Stress categories nearest to Maalaus RYL 2001: Category 3 = BC1 and BC2, Category 4a= BC3, Category 4b = BC4 – BC6.

2) The service interval is intended for guidance only and does not mean the service life of the coating.

7. PRODUCT CORRESPONDENCE TABLES FOR THE PRODUCTS OF TEKNOS OY, COVERING THE VARIOUS COATING SYSTEMS AND COMPLIANCE WITH STANDARD PSK 2703.

Coatings combinations in the order according to the table 3 in standard PSK 2703.

Protective coating systems for dry concrete floors

Stress category	Application method	Code	Priming once or twice	Top coating	Total nominal dry film thickness (µm)
BC1 Very low	Dust binding varnish	FS1.1 EP50-D/GD1	TEKNOFLOOR AQUA 110F concrete varnish	TEKNOFLOOR AQUA 110F concrete varnish	50
	Dust binding paint	FS1.3 EP100-D/GD1	TEKNOFLOOR AQUA 110F concrete paint	TEKNOFLOOR AQUA 110F concrete paint	100
BC2 Low	Painting	FS2.1 EP250-D/GD2	TEKNOFLOOR PRIMER 310F concrete varnish	TEKNOFLOOR 500F epoxy coating	250
BC3 Medium	Coating	FS3.1 EP500-D/GD2	TEKNOFLOOR PRIMER 310F concrete varnish	TEKNOFLOOR 500F epoxy coating	500
BC4 High	Self-levelling mass	FS4.1 EP2000-D/GD2	TEKNOFLOOR PRIMER 310F concrete varnish	TEKNOFLOOR 500F epoxy coating	2 000
BC5-Mec Very high	Resinous screed	FS5.1 EP4000-D/GD3	TEKNOFLOOR PRIMER 310F concrete varnish	TEKNOFLOOR 400F colour sand screed	4 000

Table 2. NEW COATING FOR DRY CONCRETE

Coating systems for moist and dry concrete floors

Stress category	Application method	Code	Priming once or twice	Top coating	Total nominal dry film thickness (µm)
BC1 Very low	Dust binding varnish	FS1.1 EP50-W/GD1	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR PRIMER 306F-01 concrete varnish	50
	Dust binding paint	FS1.3 EP100-W/GD1	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR AQUA 110F concrete paint	100
BC2 Low	Painting	FS2.1 EP250-W/GD2	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR 500F epoxy coating	250
BC3 Medium	Coating	FS3.1 EP500-W/GD2	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR 500F epoxy coating	500
BC4 High	Self-levelling mass	FS4.1 EP2000-W/GD2	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR 500F epoxy coating	2 000
BC5-Mec Very high	Resinous screed	FS5.1 EP4000-W/GD3	TEKNOFLOOR PRIMER 306F-01 concrete varnish	TEKNOFLOOR 400F colour sand screed	4 000

Table 3. NEW COATING FOR MOIST AND DRY CONCRETE

Marking of the surface treatment systems according to standard PSK 2703

PSK 2703	FS	3.1	EP	500	D	GD2
symbol of standard	prefix of surface system	number of surface treatment system	symbol of binder type	nominal dry film thickness	substrate type	substrate preparation grade

Preparation grades of the substrate according to standard PSK 2703

Object	No.	Description	Preparation grade		
			GD1	GD2	GD3
Concrete floor	1	Remove oil, grease, chemicals and other impurities from the surface with a suitable method.	X	X	X
	2	Remove laitance and possible after treatment substance from the floor surface.	X		
	3	Remove possible old coating, laitance and weak layer from the floor surface so that the fine aggregate is emerged.		X	
	4	Remove possible old coating and surface layer from the floor surface so that the coarse aggregate is emerged throughout.			X
Working joints and expansion joints as well as floor gullies and corner reinforcements	5	Bevel the edges of concrete surface slabs 30–70 mm for the entire length of the joint. (BLY10 / by49, 4 details, 4.2 working and expansion joints; available in Finnish only.)		X	X
Defects in the substrate	6	Clean holes and cracks in the surface before coating and fill them with a filler screed compatible with the coating system (BLY10 / by 49, 4 details, 4.1 surface patching and levelling; available in Finnish only.) Levelling screed must not be used without a written agreement.		X	X
Steel parts	7	Blast-clean to preparation grade Sa 2½ (SFS-EN ISO 8501-1).		X	X

X = actions included in the preparation grade.

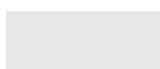
8. CHOICE OF SURFACE TREATMENT SYSTEM:

- Interior walls and ceilings
- Tanks
- Basins

		DRY SPACES	HUMID SPACES	WET SPACES	VAPOUR BARRIER *)	TANKS, BASINS *)
S1	DISPERSION COATING SYSTEMS EKORA 3 primer SILORA LF - MEDIUM light filler EKORA 7 interior paint or EKORA 20 redecorating paint					
S2	DISPERSION COATING SYSTEMS TIMANTTI 3 primer SILORA LW - VÄT light wet-room filler TIMANTTI W moisture sealer TIMANTTI 20 or 40 dispersion paint					
S3	EPOXY COATING SYSTEMS TEKNOPOX AQUA V FILL epoxy stopper TEKNOPOX AQUA V TIX epoxy paint TEKNOPOX AQUA V epoxy paint					
S4	EPOXY COATING SYSTEMS INERTA 210 epoxy coating					
S21	DISPERSION COATING SYSTEMS SILORA LW - VÄT light wet-room filler TIMANTTI W moisture sealer TIMANTTI 20 or 40 dispersion paint					
S22	CHLORINATED RUBBER COATING SYSTEM TEKNOCHLOR 150 chlorinated rubber top coat					
S23	EPOXY COATING SYSTEM TEKNOPLAST HS 150 epoxy paint TEKNOPOX FILL epoxy stopper TEKNOPLAST HS 150 epoxy paint					
S30	EPOXY COATING SYSTEM INERTA 200 epoxy coating TEKNOPOX FILL epoxy stopper INERTA 200 epoxy coating					
S31	EPOXY TAR SYSTEM TEKNOTAR 100 epoxy tar					

*) WHEN PAINTING VAPOUR BARRIERS, TANKS AND BASINS THE APPLICABILITY OF THE SYSTEM FOR THE STRAIN IN QUESTION MUST ALWAYS BE ENSURED WITH TEKNOS TECHNICAL PERSONNEL.

 APPLICABLE SYSTEM

 NON-APPLICABLE OR NON-APPROPRIATE SYSTEM

9. TECHNICAL CHARACTERISTICS OF THE PAINTS

TECHNICAL DATA / PRODUCT	DATA SHEET NO.	PAINT TYPE	MIXING RATIO base: hardener parts by vol.	DRYING TIME, +23 °C fit for light traffic	OVERCOATABLE in atmospheric exposure (for submerged or subterranean structures, see data sheet)	GLOSS	SOLIDS % by volume	TOTAL MASS OF SOLIDS g/l	VOLATILE ORGANIC COMPOUND (VOC) g/l	SPREADING RATE m ² /l	THINNER
EKORA 3 primer	439	solvent-free dispersion paint	–	dust free after ½ h	+23 °C, after 2 h	full-matt	abt. 39	–	–	6–8	water
EKORA 7 interior paint	440	solvent-free acrylate dispersion paint	–	dust free after ½ h	+23 °C, after 2 h	matt	abt. 40	–	–	4–12	water
EKORA 20 redecorating paint	441	solvent-free acrylate paint	–	dust free after ½ h	+23 °C, after 2 h	semi-matt	abt. 38	–	–	4–12	water
TEKNOTAR 100 epoxy tar	781	synthetic epoxy tar paint	2 : 1	dust free after 10 min	+10 °C min. after 12 h max. after 10 d	semi-matt	65±2	abt. 980	abt. 340	3.2–6.5	TEKNOSOLV 9506
INERTA 200	157	epoxy coating	2 : 1	dust free after 4 h	+15 °C min. after 8 h max. after 36 h	gloss	96±2	abt. 1400	abt. 40	abt. 1.9	clean up: TEKNOSOLV 6060 or TEKNOSOLV 9506
INERTA 210	184	epoxy coating with low solvent content	2:1	dust free after 6 h	+15 °C min. after 8 h max. after 36 h	gloss	94±2	abt. 1400	abt. 50	38	food-processing areas: TEKNOSOLV 6060, other objects: TEKNOSOLV 9506
RENSA Mildew Remover	1231	cleaning agent based on hypochlorite	–	–	–	–	–	–	–	–	water
RENSA Paint Washing Liquid	1232	alkalic washing agent	–	–	–	–	–	–	–	–	water
SILORA LF - MEDIUM light filler	1055	water-borne light universal filler	–	–	2–3 h/mm depending on the layer thickness	–	abt. 58 % by weight	–	–	1 l/m ² / mm	water
SILORA LW - VÄT light wet-room filler	1058	water-borne light wet-room filler	–	–	2–3 h/mm depending on the layer thickness	–	abt. 61 % by weight	–	–	1 l/m ² / mm	water

TECHNICAL DATA / PRODUCT	DATA SHEET NO.	PAINT TYPE	MIXING RATIO base : hardener parts by vol.	DRYING TIME, +23°C fit for light traffic	OVERCOATABLE in atmospheric exposure (for submerged or subterranean structures, see data sheet)			GLOSS	SOLIDS % by volume	TOTAL MASS OF SOLIDS g/l	VOLATILE ORGANIC COMPOUND (VOC) g/l	SPREADING RATE m ² /l	THINNER
					min.	max.	min.						
TEKNOCHLOR 150	175	chlorinated rubber top coat	–	dust free after ½ h	+5°C after 8 h	+23°C after 4 h	semigloss	abt. 43	abt. 820	520	2,2	TEKNOSOLV 9502	
TEKNOFLOOR 100F concrete paint and varnish	1252	epoxy paint and varnish	3 : 1	after 12 h	min.	+10°C after 24 h	gloss	paint: 48±2 varnish: 35±2	paint: abt. 700 varnish: abt. 400	paint: abt. 480 varnish: abt. 560	3–9	TEKNOSOLV 9506	
					max.	after 48 h							
TEKNOFLOOR 300F epoxy varnish	1203	solvent-free epoxy varnish	2 : 1	after 16 h	min.	+10°C after 24 h	full gloss	abt. 100	abt. 1 100	0	3–6	TEKNOSOLV 9506 TEKNOSOLV 9515	
					max.	after 48 h							
TEKNOFLOOR 400F epoxy varnish	1204	solvent-free epoxy varnish	2 : 1	after 24 h	min.	+23°C after 12 h	full gloss	abt. 100	varnish mixture without sand abt. 100	0	0,8–1,0	clean up: TEKNOSOLV 9506	
					max.	after 24 h							
TEKNOFLOOR 500F epoxy coating	1237	solvent-free epoxy coating	10 : 3	after 16 h	min.	+10°C after 24 h	full gloss	100	abt. 1 200	0	Coating: 2–3,3 Mass: 0,45–0,7	clean up: TEKNOSOLV 9506	
					max.	after 48 h							
TEKNOFLOOR 660F polyurethane coating	1568	solvent-free polyurethane coating	4 : 1	after 16 h	min.	+23°C after 16 h	full gloss	100	abt. 1 400	0	0,5–3,3	clean up: TEKNOSOLV 9521	
					max.	after 24 h							
TEKNOFLOOR AQUA 110F concrete paint and varnish	1247	water-borne epoxy paint	1 : 1	after 4 h	min.	+10°C after 12 h	gloss	45 ± 2	abt. 650	abt. 20	4–7	water	
					max.	after 7 d							

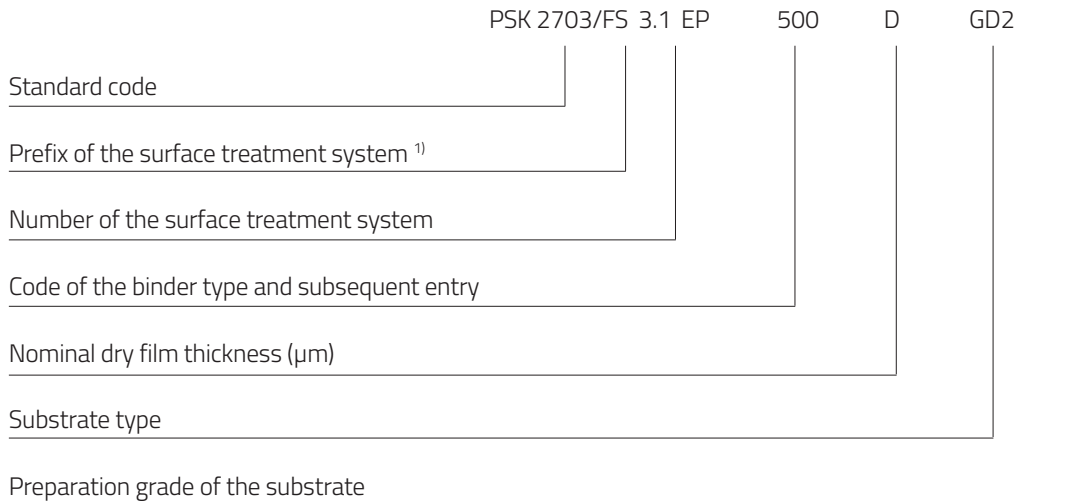
TECHNICAL DATA / PRODUCT	DATA SHEET NO.	PAINT TYPE	MIXING RATIO base: hardener parts by vol.	DRYING TIME, +23 °C fit for light traffic	OVERCOATABLE in atmospheric exposure (for submerged or subterranean structures, see data sheet)	GLOSS	SOLIDS % by volume	TOTAL MASS OF SOLIDS g/l	VOLATILE ORGANIC COMPOUND (VOC) g/l	SPREADING RATE m ² /l	THINNER
TEKNOFLOOR PRIMER 306F-01 epoxy varnish	1774	epoxy varnish	2 : 1	after 16 h	+10 °C	full gloss	100	abt. 1 100	0	3–6	TEKNOSOLV 9506 TEKNOSOLV 9515
					min. after 36 h						
TEKNOFLOOR PRIMER 310F epoxy varnish	1202	solvent-free epoxy varnish	2 : 1	after 16 h	max. after 60 h	full gloss	100	abt. 1 100	0	3–6	TEKNOSOLV 9506 TEKNOSOLV 9515
					min. after 18 h						
TEKNOPLAST HS 150	113	epoxy paint	4 : 1	dust free after 30 min	max. after 48 h	semigloss	70 ± 2	abt. 1 050	abt. 300	4,7–8,8	TEKNOSOLV 9506 clean up: TEKNOSOLV 9506 TEKNOSOLV 9530
					min. after 16 h						
TEKNOPOX AQUA V epoxy paint	910	water-borne epoxy paint	4 : 1	dust free after 7 h	max. after 9 kk	gloss	40 ± 2	abt. 740	abt. 25	4–9	water
					min. after 2 d						
TEKNOPOX AQUA V FILL epoxy stopper	912	water-borne epoxy stopper	1 : 1	dust free after 1 h	max. after 9 kk	–	76 ± 2 % by weight	abt. 1 300	abt. 20	1,5–2,5	water
					min. after 2 d						
TEKNOPOX AQUA V TIX epoxy paint	911	water-borne epoxy paint	2 : 1	dust free after 1 h	max. after 9 months	matt	42 ± 2	abt. 830	abt. 23	4–8	water
					min. after 2 d						

TECHNICAL DATA / PRODUCT	DATA SHEET NO.	PAINT TYPE	MIXING RATIO base: hardener parts by vol.	DRYING TIME, +23° C fit for light traffic	OVERCOATABLE in atmospheric exposure (for submerged or subterranean structures, see data sheet)	GLOSS	SOLIDS % by volume	TOTAL MASS OF SOLIDS g/l	VOLATILE ORGANIC COMPOUND (VOC) g/l	SPREADING RATE m ² /l	THINNER	
TEKNOPOX FILL epoxy stopper	917	solvent-free epoxy stopper	1 : 1	dust free after 6 h	+10° C	-	100	abt. 1 000	0	-	clean up: TEKNOSOLV 9506	
					min.							+23° C
					max. after 2 d							as soon as the stopper is set
TIMANNTTI W moisture sealer	1085	water-borne moisture sealer	-	dust free after 2 h	+23° C: after 4 h	-	abt. 40	-	4-8	water		
TIMANNTTI 3 primer	516	acrylate primer	-	dust free after ½ h	+23° C: after 1-2 h	full-matt	abt. 39	-	4-8	water		
TIMANNTTI 20 semi-matt special acrylate	530	acrylate paint	-	dust free after 2 h	+23° C: after 4 h	semi-matt	abt. 38	-	4-10	water		
TIMANNTTI 40 semigloss special acrylate	1093	acrylate paint	-	dust free after 2 h	+23° C: after 4 h	semigloss	abt. 38	-	4-10	water		

10. COATING SYSTEMS

Marking of the coating systems

An adaptation of the marking according to standard PSK 2703 has been used in describing the coating systems of the concrete floor products:



1) Prefix of the surface treatment system: FS = surface treatment system for floors

Codes of the binder types:

Binder type	Code
Acrylic	AY
Epoxy	EP
Polyurethane	PUR

Codes of the substrate types:

Substrate type	Code
Green and fresh setting concrete	F (fresh)
Moist concrete, relative humidity > 97%	W (wet)
Dry concrete, relative humidity ≤ 97 %	D (dry)
Old coated moist concrete, relative humidity > 97 %	CW (coated wet)
Old coated dry concrete, relative humidity ≤ 97 %	CD (coated dry)

Film thickness used in the marking of the coating system is only indicative since the film thickness after priming varies considerably depending on the coating system and preparation method. Moreover, the defining of the film thickness from a concrete surface is more difficult than from e.g. steel surface and can practically only be performed by measuring from a cross-sectional photo.

EPOXY COATING SYSTEMS

L40

Coating systems for treating concrete surfaces. Water-borne epoxy paint or varnish is used for priming and top coating. Treatment systems 65301 and 64601 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L40a/M	L40b/L
MaalausRYL 2012		65301	64601
System code according to PSK 2703		FS1.3 EP100-D/GD1	FS1.1 EP50-D/GD1
Pretreatment code according to PSK 2703		GD1	GD1
Paint			
TEKNOFLOOR AQUA 110F concrete paint		priming	–
TEKNOFLOOR AQUA 110F concrete varnish		–	priming
TEKNOFLOOR AQUA 110F concrete paint		1 x 50 µm	–
TEKNOFLOOR AQUA 110F concrete varnish		–	1 x 50 µm
Total film thickness		50–100 µm	abt. 50 µm

Usage

Concrete floors subjected to slight or medium mechanical strain in dry spaces. Concrete floors subjected to slight mechanical strain in damp spaces.

Surface preparation

Surface preparation method is usually grinding or etching. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean. Coating system L40 is also suitable for slightly moist concrete. The base of the paint must be mixed until homogenous before use. The base and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L40

PAINT		TEKNOFLOOR AQUA 110 F concrete paint	TEKNOFLOOR AQUA 110 F concrete varnish
Technical data sheet	no.	1247	1247
Paint type		water-borne epoxy reaction paint	water-borne epoxy reaction varnish
Mixing ratio			
▪ base	parts by vol.	1	1
▪ hardener	parts by vol.	1	1
Pot life, +23°C		1 ½ h	1 ½ h
Solids	% by volume	abt. 45	abt. 45
Total mass of solids	g/l	abt. 650	abt. 650
Volatile organic compound (VOC)	g/l	abt. 20	abt. 20
Spreading rate	m ² /l	4–6	4–6
Drying time			
▪ fit for light traffic, +23°C		after 24 h	after 24 h
▪ overcoatable		by itself:	by itself:
		+10°C	+10°C
		+23°C	+23°C
min.		after 12 h	after 12 h
max.		after 4 h	after 4 h
		after 7 d	after 7 d
Thinner, clean up		water	water
Colours		TEKNOFLOOR Colour Chart, Teknomix tinting	clear
Finish		gloss	gloss
Methods of application		brush, roller, airless spray	brush, roller, airless spray
Application conditions			
▪ min. temperature	°C	+10	+10
▪ max. relative humidity	%	70	70

Maintenance painting

Old coating is cleaned from dirt and grease and sanded matt. Sections where the coating has worn off or detached, are pretreated and primed over again. The floor is coated once according to the instructions in the technical data sheet. Treatment systems 65301 and 64601 according to MaalausRYL 2012.

EPOXY COATING SYSTEMS

L42

Coating systems for treating concrete surfaces. Solvent-borne epoxy paint or varnish is used for priming and top coating. Treatment systems 64701 and 65601 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L42/M (EP100/2)	L42/L (EP100/2)
MaalausRYL 2012		65601	64701
System code according to PSK 2703		–	–
Pretreatment code according to PSK 2703		GD1	GD1
Paint			
TEKNOFLOOR 100F concrete paint		priming	–
TEKNOFLOOR 100F concrete varnish		–	priming
TEKNOFLOOR 100F concrete paint		1 x 60 µm	–
TEKNOFLOOR 100F concrete varnish		–	1 x 60 µm
Total film thickness		60–100 µm	60–100 µm

Usage

Industrial and car halls as well as dry industrial processing spaces and storages.

Surface preparation

Surface preparation method is usually grinding. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97% as relative humidity or 4 % by weight). The base of the paint must be mixed until homogenous before use. The base and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L42

PAINT		TEKNOFLOOR 100F concrete paint and varnish	
Technical data sheet	no.	1252	
Paint type		solvent-borne epoxy reaction paint and varnish	
Mixing ratio			
▪ base	parts by vol.	3	
▪ hardener	parts by vol.	1	
Pot life, +23°C		6 h	
Solids	% by volume	paint: abt.48 varnish: abt. 35	
Total mass of solids	g/l	paint: abt. 700 varnish: abt. 400	
Volatile organic compound (VOC)	g/l	paint: abt. 480 varnish: abt. 560	
Spreading rate	m ² /l	5–7	
Drying time			
▪ fit for light traffic, +23°C		after 12 h	
▪ overcoatable		by itself:	
		+10°C	+23°C
min.		after 24 h	after 6 h
max.		after 48 h	after 24 h
Thinner, clean up		TEKNOSOLV 9506	
Colours		Standard colours according to the TEKNOFLOOR Colour Card. The paint is included in the Teknomix tinting system.	
Finish		full gloss	
Methods of application		brush, roller	
Application conditions			
▪ min. temperature	°C	+10	
▪ max. relative humidity	%	80	

Maintenance painting

Old coating is cleaned from dirt and grease and sanded matt. Cavities and crevices are filled. Sections where the coating has worn off or detached, are pretreated and primed over again. The floor is coated once according to the instructions in the technical data sheet. Treatment systems 64701 and 65601 according to MaalausRYL 2012.

EPOXY COATING SYSTEMS

L44

Coating systems for treating concrete surfaces. Epoxy varnish is used for priming and solvent-free, self-levelling epoxy coating for top coating. Treatment system 66101 (L44/b) according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L44/a	L44/b
MaalausRYL 2012		–	66101
System code according to PSK 2703		FS2.1 EP250-D/GD2	FS3.1 EP500-D/GD2
Pretreatment code according to PSK 2703		GD2	GD2
Paint			
TEKNOFLOOR PRIMER 310F epoxy varnish		priming	priming
TEKNOFLOOR 500F epoxy coating		1 x 250 µm	1 x 500 µm
Total film thickness		abt. 250 µm	abt. 500 µm

Painting of damp concrete

TEKNOFLOOR PRIMER 306F epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity. In that case the system codes according to PSK 2703 are:

L44/a: FS2.1 EP250-W/GD2

L44/b: FS3.1 EP500-W/GD2.

Usage

Damp spaces within pulp, paper and chemical industry, floors and storages within heavy industry.

Surface preparation

Surface preparation method is usually grinding or shot-blasting. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97 % as relative humidity or 4% by weight). The base of the coating must be mixed until homogenous before use. The base and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L44

PAINT		TEKNOFLOOR PRIMER 310F epoxy varnish		TEKNOFLOOR 500F epoxy coating	
Technical data sheet	no.	1202		1237	
Paint type		solvent-free epoxy varnish		solvent-free epoxy coating	
Mixing ratio					
▪ base	parts by vol.	2		10	
▪ hardener	parts by vol.	1		3	
Pot life, +23°C					
▪ kept in the vessel	min	10		10–15	
▪ poured out on the floor	min	20		30–60	
Solids	% by volume	abt. 100		abt. 100	
Total mass of solids	g/l	abt. 1 100		abt. 1 200	
Volatile organic compound (VOC)	g/l	abt. 0		abt. 0	
Spreading rate	m ² /l	3–6		2–4	
Drying time					
▪ fit for light traffic, +23°C		after 16 h		after 16 h	
▪ overcoatable		by itself or with TEKNOFLOOR		by itself	
		500F		+10°C	
	min.	+10°C		+23°C	
		+23°C		after 24 h	
	max.	after 18 h		after 16 h	
		after 4 h		after 48 h	
		after 24 h		after 24	
Thinner, clean up (the coating is not to be thinned!)		after 48 h TEKNOSOLV 9506 or		TEKNOSOLV 9506	
Colours		TEKNOSOLV 9515		Certain colours of the RAL Colour Card	
Finish		full gloss		full gloss	
Methods of application		brush, roller		dentated trowel, roller	
Application conditions					
▪ min. temperature	°C	+10		+10	
▪ max. relative humidity	%	80		80	

Maintenance painting

Old coating is cleaned from dirt and grease and sanded matt. Cavities and crevices are filled. Sections where the coating has worn off or detached, are pretreated and primed over again. The floor is coated once according to the instructions in the technical data sheet. Treatment system 66101 (L44/b) according to MaalausRYL 2012.

EPOXY MASS SYSTEMS

L46

Coating system for treating concrete surfaces. Epoxy varnish is used for priming and solvent-free, self-levelling epoxy mass for top coating. Treatment system 66201 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L46
	MaalausRYL 2012	66201
	System code according to PSK 2703	FS4.1 EP2000-D/GD2
	Pretreatment code according to PSK 2703	GD2
Paint		
TEKNOFLOOR PRIMER 310F epoxy varnish		priming
TEKNOFLOOR 500F epoxy coating + sand mixture		1 x 2 mm
TEKNOFLOOR 500F epoxy coating + sand mixture		–
Total film thickness		n. 2 mm

Painting of damp concrete

TEKNOFLOOR PRIMER 306F epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity. In that case the system code according to PSK 2703 for system L46 is: FS4.1 EP2000-W/GD2.

Usage

Floors subjected to heavy strain within pulp, paper and chemical industry as well as print shops, car repair shops and dry spaces within food industry.

Surface preparation

Surface preparation method is usually grinding, scarifying or shot-blasting. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97 % as relative humidity or 4 % by weight). The base of the coating must be mixed until homogenous before use. The base, the sand and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L46

PAINT	TEKNOFLOOR PRIMER 310F epoxy varnish	TEKNOFLOOR 500F epoxy coating + sand mixture, 2 mm
Technical data sheet no.	1202	1237
Paint type	solvent-free epoxy varnish	solvent-free epoxy coating
Mixing ratio <ul style="list-style-type: none"> ▪ base ▪ hardener ▪ quartz sand 0.05–0.5 mm or natural sand 0.1–0.6 mm Ready mixture	2 parts by volume 1 part by volume	9 liters 2.7 liters 12 liters – abt. 18 liters
Pot life, +23°C <ul style="list-style-type: none"> ▪ kept in the vessel min ▪ poured out on the floor min 	10 20	10–15 30–60
Solids % by volume	abt. 100	abt. 100
Total mass of solids g/l	abt. 1 100	abt. 1 200
Volatile organic compound (VOC) g/l	abt. 0	abt. 0
Spreading rate m ² /l	3–6	2–2.5
Drying time <ul style="list-style-type: none"> ▪ fit for light traffic, +23°C ▪ overcoatable 	after 16 h by itself or with TEKNOFLOOR 500F	after 16 h –
	min. +10°C	+23°C
	max. after 18 h	after 4 h
	after 48 h	after 24 h
Thinner, clean up (the mass is not to be thinned!)	TEKNOSOLV 9506 or TEKNOSOLV 9515	TEKNOSOLV 9506
Colours	–	Certain colours of the RAL Colour Card
Finish	full gloss	full gloss
Methods of application	brush, roller	adjustable trowel, porcupine roller
Application conditions <ul style="list-style-type: none"> ▪ min. temperature °C ▪ max. relative humidity % 	+10 80	+10 80

Maintenance painting

Old mass is cleaned from dirt and grease and sanded matt. Cavities and crevices are filled. Sections where the mass has worn off or detached, are pretreated and primed over again. The floor is coated according to the instructions in the technical data sheet. Treatment system 66201 according to MaalausRYL 2012.

POLYURETHANE COATING AND MASS SYSTEM

L47

Coating system for treating concrete surfaces. Epoxy varnish is used for priming and solvent-free, self-levelling polyurethane coating for top coating. Treatment systems 66501 and 66601 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L47/a	L47/b
MaalausRYL 2012		66501	66601
System code according to PSK 2703		FS3.2 PUR500-D/GD2	FS4.2 PUR2000-D/GD2
Pretreatment code according to PSK 2703		GD2	GD2
Paint			
TEKNOFLOOR PRIMER 310F epoxy varnish		priming	priming
TEKNOFLOOR 660F polyurethane coating		1 x 500 µm	1 x 2 mm
Total film thickness		abt. 500 µm	abt. 2 mm

Painting of damp concrete

TEKNOFLOOR PRIMER 306F epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity. In that case the system codes according to PSK 2703 are:

L47/a: FS3.2 EPPUR500-W/GD2

L47/b: FS4.2 EPPUR2000-W/GD2.

Usage

Industrial floors where floor surface must be elastic and very resistant to mechanical strain.

Surface preparation

Surface preparation method is usually grinding or shot-blasting. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97 % as relative humidity or 4 % by weight). The base of the coating must be mixed until homogenous before use. The base and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L47

PAINT		TEKNOFLOOR PRIMER 310F epoxy varnish	TEKNOFLOOR 660F polyurethane coating
Technical data sheet	no.	1202	1568
Paint type		solvent-free epoxy varnish	solvent-free polyurethane coating
Mixing ratio			
▪ base	parts by vol.	2	4
▪ hardener	parts by vol.	1	1
Pot life, +23 °C			
▪ kept in the vessel	min	10	10
▪ poured out on the floor	min	20	30
Solids % by volume		abt. 100	abt. 100
Total mass of solids		g/l abt. 1 100	abt. 1 400
Volatile organic compound (VOC)		g/l abt. 0	abt. 0
Spreading rate		m ² /l 3–6	0.5–2
Drying time			
▪ fit for light traffic, +23 °C		after 16 h	after 16 h
▪ overcoatable		by itself or with TEKNOFLOOR 660F	–
		+10 °C	+23 °C
	min.	after 18 h	after 4 h
	max.	after 48 h	after 24 h
Thinner, clean up (the coating or mass is not to be thinned!)		TEKNOSOLV 9506 or TEKNOSOLV 9515	TEKNOSOLV 9521
Colours		–	Certain colours of the RAL Colour Card
Finish		full gloss	full gloss
Methods of application		brush, roller	dentated trowel, adjustable trowel, roller
Application conditions			
▪ min. temperature	°C	+10	+10
▪ max. relative humidity	%	80	80

Maintenance painting

Old coating is cleaned from dirt and grease and sanded matt. Cavities and crevices are filled. Sections where the coating has worn off or detached, are pretreated and primed over again. The floor is coated once according to the instructions in the technical data sheet. Treatment systems 66501 and 66601 according to MaalausRYL 2012.

EPOXY COLOUR SAND SYSTEM

L48

Coating system for treating concrete surfaces. Epoxy varnish is used for priming and solvent-free, rubbable epoxy mass for top coating. Treatment system 66301 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	L48
	MaalausRYL 2012	66301
	System code according to PSK 2703	FS5.1 EP4000-D/GD3
	Pretreatment code according to PSK 2703	GD3
Paint		
TEKNOFLOOR 300F epoxy varnish		priming
TEKNOFLOOR 400F epoxy varnish + coloured sand mixture		1 x 4 mm
TEKNOFLOOR 300F epoxy varnish		1–2 x top coating
Total film thickness		abt. 4 mm

Also TEKNOFLOOR PRIMER 310F epoxy varnish can be used for priming. The number of top coating tiers depends on the strain the floor is subjected to (see technical data sheet 1204).

Painting of damp concrete

TEKNOFLOOR PRIMER 306F epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity. In that case the system code according to PSK 2703 is: L48: FS5.1 EP4000-W/GD3.

Usage

Floors subjected to severe mechanical and chemical strain.

Surface preparation

Surface preparation method is scarifying or shot-blasting. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97 % as relative humidity or 4 % by weight). Before use the base, the sand mixture and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L48

PAINT		TEKNOFLOOR 300F epoxy varnish	TEKNOFLOOR 400F epoxy varnish
Technical data sheet	no.	1203	1204
Paint type		solvent-free epoxy reaction varnish	solvent-free epoxy reaction varnish
Mixing ratio			
▪ base		2 parts by volume	6 liters
▪ hardener		1 part by volume	3 liters
▪ coloured sand 0.7–1.2 mm			28 liters
▪ coloured sand 1–1.8 mm			7 liters
Pot life, +23°C			
▪ kept in the vessel	min	10	15–30
▪ poured out on the floor	min	30–40	60–120
Solids	% by volume	abt. 100	abt. 100
Total mass of solids	g/l	abt. 1 100	Varnish mixture without sand 1 100
Volatile organic compound (VOC)	g/l	abt. 0	abt. 0
Spreading rate	m ² /l	3–6 (priming) 7–10 (top coating)	4–5
Drying time			
▪ fit for light traffic, +23°C		after 16 h	after 24 h
▪ overcoatable		by itself or with TEKNOFLOOR 400F:	with TEKNOFLOOR 300F:
	min.	+10°C	+23°C
	max.	after 24 h	after 36 h
		after 6 h	after 16 h
		after 48 h	after 72 h
		after 24 h	after 24 h
Thinner, clean up (the mass is not to be thinned!)		TEKNOSOLV 9506 or TEKNOSOLV 9515	TEKNOSOLV 9506
Colours		–	colours of the sands
Methods of application		brush, roller	adjustable trowel, mechanical rubbing, roller box, “helicopter”
Application conditions			
▪ min. temperature	°C	+10	+15
▪ max. relative humidity	%	80	80

Maintenance painting

Old mass is cleaned from dirt and grease and grinded matt or lightly shot-blasted. Cavities and crevices are filled with a stiff mixture of varnish and coloured sand. Sections where the mass has worn off or detached, are pretreated and primed over again. The floor is coated and varnished according to the instructions in the technical data sheet. Treatment system 66301 according to MaalausRYL 2012.

Terrazzo coating system

L55

Coating system for treating concrete surfaces. Epoxy varnish is used for priming and solvent-free, self-levelling epoxy coating, vinyl flakes and epoxy varnish for top coating.

Code	L55
System code according to PSK 2703	–
Pretreatment code according to PSK 2703	GD2
PAINT	
TEKNOFLOOR PRIMER 310F epoxy varnish	priming
TEKNOFLOOR 500F epoxy coating	1 x 300–500 µm
vinyl flakes	strewing abt. 30–70 g/m ²
TEKNOFLOOR 300F epoxy varnish	2 x top coating
Total film thickness	400–600 µm

Also TEKNOFLOOR AQUA 110F epoxy varnish can be used for top coating.

Painting of damp concrete

TEKNOFLOOR PRIMER 306F epoxy varnish must be used for priming if the moisture of the concrete surface to be painted exceeds 97 % as relative humidity.

Usage

Shops, laboratories, corridor and hall spaces.

Surface preparation

Surface preparation method is usually grinding or shot-blasting. Detailed instructions can be found in the technical data sheets of the mentioned products.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 97% as relative humidity or 4 % by weight). The base of the coating must be mixed until homogenous before use. The base and the hardener are carefully mixed in right proportion given in the table on the following page and on the label of the paint. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time. Vinyl flakes are strewn on freshly applied coating in order to achieve the desired appearance. After the coating has dried, the surface is varnished twice to improve wear resistance.

The technical data of the paints and varnishes are given in the table on the following page and in the data sheets of the products.

Technical data / L55

PAINT		TEKNOFLOOR PRIMER 310F epoxy varnish	TEKNOFLOOR 500F epoxy coating	TEKNOFLOOR 300F epoxy varnish
Technical data sheet	no.	1202	1237	1203
Paint type		solvent-free epoxy varnish	solvent-free epoxy reaction coating	solvent-free epoxy varnish
Mixing ratio				
▪ base	parts by vol.	2	10	2
▪ hardener	parts by vol.	1	3	1
Pot life, +23°C				
▪ kept in the vessel	min	10	10–15	10
▪ poured out on the floor	min	20	30–60	30–40
Solids	% by volume	abt. 100	abt. 100	abt. 100
Total mass of solids	g/l	abt. 1 100	abt. 1 200	abt. 1 100
Volatile organic compound (VOC)	g/l	abt. 0	abt. 0	abt. 0
Spreading rate	m ² /l	3–6	2–3	7–10
Drying time				
▪ fit for light traffic, +23°C		after 16 h	after 16 h	after 16 h
▪ overcoatable		by itself or with TEKNOFLOOR 500F	with TEKNOFLOOR 300F	by itself
		+10°C	+10°C	+10°C
		+23°C	+23°C	+23°C
	min.	after 18 h	after 24 h	after 24 h
	max.	after 48 h	after 48 h	after 48 h
		after 4 h	after 16 h	after 6 h
		after 24 h	after 24 h	after 24 h
Thinner, clean up (the coating is not to be thinned!)		TEKNOSOLV 9506 or TEKNOSOLV 9515	TEKNOSOLV 9506	TEKNOSOLV 9506 or TEKNOSOLV 9515
Colours		–	Certain colours of the RAL Colour Card	–
Finish		full gloss	full gloss	full gloss
Methods of application		brush, roller	dentated trowel, roller	brush, roller
Application conditions				
▪ min. temperature	°C	+10	+10	+10
▪ max. relative humidity	%	80	80	80

Maintenance painting

Old coating is cleaned from dirt and grease and sanded matt. Cavities and crevices are filled. Sections where the coating has worn off or detached, are pretreated and primed over again. The floor is coated and varnished according to the instructions in the technical data sheet.

DISPERSION COATING SYSTEMS

S1

Coating systems for concrete, light concrete and lightweight aggregate concrete walls and ceilings in dry spaces as well as for filler surfaces in dry spaces. Priming and top coating is performed with water-borne dispersion paints (latex paints). Treatment system 31301 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	S1a	S1b	S1c
	MaalausRYL 2012	31301	–	312
	Strain category (MaalausRYL 2012)	03	03	03
	Appearance class (MaalausRYL 2012)	Ps3	Ps2	Ps2
Paint				
EKORA 3 primer		priming	–	priming
SILORA LF - MEDIUM light filler		–	partial filling	partial filling
EKORA 7 interior paint		–	priming	–
EKORA 7 interior paint *)		1 x top coating	1 x top coating	2 x top coating

*) Semi-matt EKORA 20 can be used instead of EKORA 7.

Usage

For painting of concrete wall surfaces where good washability and abrasion resistance is required, e.g. in halls, staircases, offices, shops, dry storage and industrial spaces as well as repair shops.

Surface preparation

Clean the substrate from loose matter, dirt and dust. Wash previously painted surfaces with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Smooth any irregularities in the surface with SILORA LF – MEDIUM light filler.

Application

The surface to be painted has to be clean and dry. During the application and drying period the temperature of the ambient air, the surface and the paint shall be above +5°C and the relative air humidity below 80%. Ventilation during and after the painting will quicken the drying.

Before use stir the paint thoroughly. Thin with water, if necessary. Apply the paint by roller, spray or brush.

The technical data of the paints is given in the table on the following page and in the data sheets of the products.

Technical data / S1

PAINT		EKORA 3 PRIMER	EKORA 7 INTERIOR PAINT EKORA 20 REDECORATING PAINT
Technical data sheet	no.	439	EKORA 7: 440 EKORA 20: 441
Paint type		solvent-free dispersion paint	solvent-free dispersion paint
Painting product group (FI)		212 and 313	EKORA 7: 313 EKORA 20: 314
Gloss group (FI) and gloss		6 full-matt	EKORA 7: 5 matt EKORA 20: 4 semi-matt
Solids	% by volume	abt. 39	EKORA 7: abt. 40 EKORA 20: abt. 38
Practical spreading rate	m ² /l	6–8	
▪ smooth surface			10–12
▪ previously painted surface			7–10
▪ filler and wood fibre board			4–7
▪ concrete and plastered surface			
Density	g/ml	abt. 1.5	abt. 1.3
Drying time, +23 °C, relative humidity 50 %			
▪ dust free		after ½ h	after ½ h
▪ overcoatable		after 2 h	after 2 h
Clean up		water	water
Colours		white; can be tinted	Base paints 1 and 3; can be tinted Off-white T1327 (TC-8168)
Application methods		roller, brush, spray	roller, brush, spray
Application conditions			
▪ min. temperature	°C	+5	+5
▪ max. relative humidity	%	80	80
Storage		must not freeze	must not freeze

Maintenance painting

Wash old painted surface with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Matt down gloss surfaces by sanding and remove dust.

Smooth irregularities in the surface with SILORA LF – MEDIUM light filler.

Sections where the paint has worn off or detached, are pretreated and primed over again. Walls and ceilings are painted once or twice according to the technical data sheet. Treatment system 31301 according to MaalausRYL 2012.

DISPERSION COATING SYSTEMS

S2

Coating systems for concrete, light concrete and lightweight aggregate concrete walls and ceilings in humid spaces as well as for filler surfaces in humid spaces. Priming and top coating is performed with water-borne dispersion paints. Treatment system 31502 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

	Code	S2a	S2b	S2c
MaalausRYL 2012		–	–	31502
Strain category (MaalausRYL 2012)		05	05	05
Appearance class (MaalausRYL 2012)		Ps3	Ps2	Ps2
Paint				
TIMANTTI 3 primer		1 x priming	–	–
TIMANTTI W moisture sealer		–	1 x priming	–
SILORA LW - VÄT light wet-room filler		–	partial filling	partial filling
TIMANTTI W moisture sealer		–	–	2 x priming
TIMANTTI 20 semi-matt dispersion paint *)		1 x top coating	2 x top coating	2 x top coating

*) Semigloss TIMANTTI 40 can be used instead of TIMANTTI 20.

Usage

For painting of concrete wall surfaces which are washed repeatedly and require abrasion resistance in social and wash premises, dairy, food industry and animal husbandry spaces as well as storage and industrial spaces.

Surface preparation

Clean the substrate from loose matter, dirt and dust. Wash previously painted surfaces with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Smooth any irregularities in the surface with SILORA LW – VÄT light wet-room filler.

Application

The surface to be painted has to be clean and dry. During the application and drying period the temperature of the ambient air, the surface and the paint shall be above +5 °C and the relative air humidity below 80 %. Ventilation during and after the painting will quicken the drying.

Before use stir the paint thoroughly. Thin with water, if necessary. Apply the paint by roller, spray or brush.

The technical data of the paints is given in the table on the following page and in the data sheets of the products.

Technical data / S2

PAINT	TIMANTTI 3 PRIMER	TIMANTTI W MOISTURE SEALER	TIMANTTI 20 SEMI-MATT DISPERSION PAINT TIMANTTI 40 SEMIGLOSS DISPERSION PAINT
Technical data sheet no.	516	1085	TIMANTTI 20: 530 TIMANTTI 40: 1093
Paint type	acrylate dispersion primer	acrylate dispersion moisture sealer	acrylate dispersion paint
Painting product group (FI)	212	213	315
Gloss group (FI) and gloss	6 full-matt	–	TIMANTTI 20: 4 semi-matt TIMANTTI 40: 5 semigloss
Solids % by volume	abt. 39	abt. 40	abt. 38
Practical spreading rate m ² /l			
▪ previously painted surface			7–10
▪ filler and wood fibre board	4–8	4–8	6–8
▪ concrete and plastered surface	4–8	4–8	4–7
Density g/ml	abt. 1.6	abt. 1.0	TIMANTTI 20: abt. 1.3 TIMANTTI 40: abt. 1.2
Drying time, +23 °C, relative humidity 50 %			
▪ dust free	after ½ h	after 2 h	after 2 h
▪ overcoatable	after 1 - 2 h	after 4 h	after 4 h
Clean up	water	water	water
Colours	white; can be tinted Off-white T1327 (TC-8168)	transparent green	TIMANTTI 20: Base paints 1 and 3; can be tinted Off-white T1327 (TC-8168) TIMANTTI 40: Base paint 1; can be tinted
Application methods	roller, brush, spray	roller, brush	roller, brush, spray
Application conditions			
▪ min. temperature °C	+5	+5	+5
▪ max. relative humidity %	80	80	80
Storage	must not freeze	must not freeze	must not freeze

Maintenance painting

Wash old painted surface with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Matt down hard and gloss surfaces by sanding and remove dust.

Smooth irregularities in the surface with SILORA LW – VÄT light wet-room filler.

Sections where the paint has worn off or detached, are pretreated and primed over again. Walls and ceilings are painted once or twice according to the technical data sheet. Treatment system 31502 according to MaalausRYL 2012.

EPOXY COATING SYSTEMS

S3

Coating systems for concrete walls and ceilings. Priming and top coating is performed with water-borne epoxy paints.

Symbol	S3a EP120/2	S3b EP180/3	S3c EP180/3
Paint			
TEKNOPOX AQUA V TIX epoxy paint	–	1 x 60 µm	–
TEKNOPOX AQUA V FILL epoxy stopper	–	filling	filling
TEKNOPOX AQUA V TIX epoxy paint	–	–	1 x 60 µm
TEKNOPOX AQUA V epoxy paint	2 x 60 µm	2 x 60 µm	2 x 60 µm

Usage

- S3a-EP120/2 Wall and ceiling surfaces in humid spaces with light strain.
- S3b-EP180/3 Wall and ceiling surfaces that are subjected to light humidity and chemical strain in building objects where hygienic and easy-to-clean surfaces are required.
- S3c-EP180/3 Wall and ceiling surfaces that are subjected to heavy wear or moderate humidity and chemical strain in building objects where hygienic and easy-to-clean surfaces are required. E.g. food processing industry, hospitals, laboratories and sport halls.

Surface preparation

Surface is usually prepared by sanding or brushing. Detailed information about surface preparation can be found in the products' data sheets.

Filling is made to zero level, if necessary.

Solvent-free epoxy stopper TEKNOPOX FILL is suitable for filling deep cavities.

Application

The surface to be painted must be clean and dry (the humidity of the concrete max. 4 % by weight). Before use stir the base thoroughly until homogenous. Mix the base and the hardener with care. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

The temperature of the air and the surface to be painted as well as the relative humidity of the air during the application and the drying must be in accordance with the values given in the table on the following page. The surface to be painted must be dry and dust-free.

The equipment needed for application and the technical data of the paints are given in the table on the following page and in the data sheets of the products.

Technical data / S3

PAINT	TEKNOPOX AQUA V FILL		TEKNOPOX AQUA V TIX		TEKNOPOX AQUA V	
Technical data sheet no.	912		911		910	
Paint type	water-borne epoxy stopper		water-borne epoxy paint		water-borne epoxy paint	
Mixing ratio						
▪ base parts by volume	1		2		4	
▪ hardener parts by volume	1		1		1	
Pot life, +23°C	1 ½ h		2 h		2 h	
Volume solids	abt. 76 % by weight		abt. 42 % by volume		abt. 40 % by volume	
Total mass of solids g/l	abt. 1 300		abt. 830		abt. 740	
Volatile organic compound (VOC) g/l	abt. 20		abt. 23		n. 25	
Practical spreading rate m²/l	1.5–2.5		4–6		4–9	
Drying time					(relative humidity 50 %)	
▪ dust free, +23°C	after 1 h		after 1 h		after 7 h	
▪ touch-dry, +23°C	after 3 h		after 12 h		after 1 d	
▪ fully cured, +23°C	after 5 d				after 5–7 d	
▪ overcoatable	by itself, by TEKNOPOX AQUA V TIX or by TEKNOPOX AQUA V:		by itself or by TEKNOPOX AQUA V:		by itself:	
	+10°C	+23°C	+10°C	+23°C	+10°C	+23°C
min.	after 2 d	after 16 h	after 2 d	after 16 h	after 2 d	after 1 d
max.*	after 9 months	after 9 months	after 9 months	after 9 months	after 9 months	after 9 months
Thinner	water		water		water	
Clean up	water and synthetic washing agent, TEKNO SOLV 9506		water and synthetic washing agent, TEKNO SOLV 9506		water and synthetic washing agent	
Colours	light grey		off-white		white and clear	
Finish	–		matt		gloss	
Application equipment	steel trowel or rubber spatula		airless spray, brush or short-piled mohair roller		airless spray, short-piled mohair roller or brush	
Airless spray nozzle	–		0.017–0.021"		0.015–0.018"	
Application conditions						
▪ min. temperature °C	+10		+10		+10	
▪ max. relative humidity %	80		80		80	

* Maximum overcoating interval without roughening.

Maintenance painting

Clean the old paint surface. Matt down glossy surfaces and remove dust.

Smooth any irregularities in the surface with TEKNOPOX AQUA V FILL epoxy stopper.

Paint the surfaces with the paints of the system to the original film thickness.

EPOXY COATING SYSTEMS

S4

Coating systems for concrete walls. The systems consist of a two-pack epoxy coating with low solvent content. The cured paint film is odourless and tasteless.

	Code	S4a	S4b
		EP300/1	EP500/2
Paint			
INERTA 210 epoxy coating		1 x 300 µm	2 x 250 µm
Total film thickness		300 µm	500 µm

Usage

For wall and ceiling surfaces within food processing and pharmaceutical industry.

S4a-EP300/1 Surfaces previously treated with epoxy paint, when mechanical resistance and good washability are required.

S4b-EP500/2 Concrete and brick surfaces in extremely demanding conditions. System is equivalent to ceramic tiling. Approved to be used in export slaughterhouses and other food processing plants in compliance with EC directives (statement ELI 21886 by VTT the Technical Research Centre of Finland). Also suitable for painting of concrete flour and dry forage silos.

Surface preparation

Prepare the surface by removing dense laitance and possible brittle top layer of concrete using appropriate methods. Detailed instructions can be found in the technical data sheet of the mentioned product.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 4 % by weight). The base and the hardener of the coating must be mixed until homogenous before use. The base and the hardener are then carefully mixed. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

Apply INERTA 210 by airless spray with great pressure ratio, brush or roller. Take the pot life of the coating, abt. 30 min, into consideration while mixing and painting. The coating is diluted by 5 %, when required. Use TEKNOSOLV 6060 for dilution in food processing spaces and TEKNOSOLV 9506 for other objects.

The technical data of the paint is given in the table on the following page and in the data sheet of the product.

The equipment needed for application and the technical data of the paints are given in the table on the following page and in the data sheets of the products.

Technical data / S4

PAINT		INERTA 210	
Technical data sheet	no.	184	
Paint type		epoxy coating with low solvent content	
Mixing ratio			
▪ base	parts by vol.	2	
▪ hardener	parts by vol.	1	
Pot life, +23°C	min	30	
Colours		white	
Finish		gloss	
Solids	% by volume	abt. 94	
Total mass of solids	g/l	abt. 1 400	
Volatile organic compound	g/l	abt. 50	
Recommended film thickness			
▪ wet	µm	266–320	
▪ dry	µm	250–300	
Theoretical spreading rate	m ² /l	3.8–3.2	
Drying time			
▪ dust free, +23°C		after 6 h	
▪ touch dry, +23°C		after 12 h	
▪ overcoatable		by itself:	
		+15°C	+23°C
	min.	after 8 h	after 4 h
	max.	after 36 h	after 24 h
Thinner, clean up		in food processing spaces TEKNOSOLV 6060, in other spaces TEKNOSOLV 9506	
Methods of application		Airless spray. Brush or roller can be used for touching up.	
Airless spray nozzle		0.018–0.026" (turn-nozzle)	
Application conditions			
▪ min. temperature	°C	+15	
▪ max. relative humidity	%	80	

Maintenance painting

Remove flaking paint and dirt from damaged areas by grinding, scraping or blast-cleaning.

Feather the edges of prepared areas and roughen the surface to be painted around the damaged area by grinding.

Touch up the prepared patches with the paints of the system to the original film thickness.

DISPERSION COATING SYSTEM

S21

Coating system for concrete walls and ceilings in wet spaces as well as for filler surfaces in wet spaces. Priming and top coating is performed with water-borne dispersion paints (latex paints). Coating system is also suitable for vapour barrier painting. Treatment system 31502 according to MaalausRYL 2012 (Finnish handbook "MaalausRYL 2012" concerning general quality requirements and treatment systems of paint work).

Code	S21
MaalausRYL 2012	31502
Strain category (MaalausRYL 2012)	05
Appearance class (MaalausRYL 2012)	Ps2
Paint	
SILORA LW – VÄT light wet-room filler	partial filling
TIMANTTI W moisture sealer	2 x 50 µm
TIMANTTI 20 semi-matt dispersion paint *)	2 x 50 µm
*) Semigloss TIMANTTI 40 can be used instead of TIMANTTI 20.	

Usage

For concrete wall and ceiling surfaces which will be subjected to special strain and are wet. Moisture permeability of the paints has been determined in VTT Technical Research Centre of Finland (test report no. RAM 01432/90).

Surface preparation

Clean the substrate from loose matter, dirt and dust. Wash previously painted surfaces with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Smooth any irregularities in the surface with SILORA LW – VÄT light wet-room filler.

Application

The surface to be painted has to be clean and dry. During the application and drying period the temperature of the ambient air, the surface and the paint shall be above +5°C and the relative air humidity below 80 %. Ventilation during and after the painting will quicken the drying.

Before use stir the paint thoroughly. Thin with water, if necessary. Apply the paint by roller, spray or brush.

The technical data of the paints is given in the table on the following page and in the data sheets of the products.

Technical data / S21

PAINT	TIMANTTI W MOISTURE SEALER	TIMANTTI 20 SEMI-MATT DISPERSION PAINT TIMANTTI 40 SEMIGLOSS DISPERSION PAINT
Technical data sheet no.	1085	TIMANTTI 20: 530 TIMANTTI 40: 1093
Paint type	acrylate dispersion moisture sealer	acrylate dispersion paint
Painting product group (FI)	213	315
Gloss group (FI) and gloss	–	TIMANTTI 20: 4 semi-matt TIMANTTI 40: 5 semigloss
Solids % by volume	abt. 40	abt. 38
Practical spreading rate m ² /l		
▪ previously painted surface		7–10 (50 µm)
▪ filler and wood fibre board	4–8 (50 µm)	6–8 (50 µm)
▪ concrete and plastered surface	4–8 (50 µm)	4–7 (50 µm)
Density g/ml	abt. 1.0	TIMANTTI 20: abt. 1.3 TIMANTTI 40: abt. 1.2
Drying time, +23 °C, relative humidity 50 %		
▪ dust free	after 2 h	after 2 h
▪ overcoatable	after 4 h	after 4 h
Clean up	water	water
Colours	transparent green	TIMANTTI 20: Base paints 1 and 3; can be tinted Off-white T1327 (TC-8168) TIMANTTI 40: Base paint 1; can be tinted
Application methods	roller, brush	roller, brush, spray
Application conditions		
▪ min. temperature °C	+5	+5
▪ max. relative humidity %	80	80
Storage	must not freeze	must not freeze

Maintenance painting

Wash old painted surface with RENSA Paint Washing Liquid and rinse thoroughly with warm water.

Matt down hard and gloss surfaces by sanding and remove dust.

Smooth irregularities in the surface with SILORA LW – VÄT light wet-room filler.

Sections where the paint has worn off or detached, are pretreated and primed over again. Walls and ceilings are painted once or twice according to the technical data sheet. Treatment system 31502 according to MaalausRYL 2012.

CHLORINATED RUBBER COATING SYSTEM

S22

Coating system for vapour barrier painting of concrete walls and ceilings. Physically drying chlorinated rubber paint is used for priming and top coating.

	Code	S22 KK200/2
Paint		
TEKNOCHLOR 150 chlorinated rubber top coat		2 x 100 µm
Total film thickness		200 µm

Usage

Used as a moisture proof vapour barrier on concrete, brick and plaster surfaces. Moisture permeability of the paint has been determined in VTT Technical Research Centre of Finland (test report no. RAT 01076). TEKNOCHLOR 150 is also suitable for painting of old dispersion or lime paint surfaces.

Surface preparation

Surface preparation method is usually grinding or brushing. Old, dirty concrete and painted surfaces are treated with high pressure washing. Detailed instructions can be found in the technical data sheet of the mentioned product.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 4 % by weight). The paint must be mixed until homogenous before use.

The temperature of the air and the surface to be painted as well as the relative humidity of the air during the application and the drying must be in accordance with the values given in the table on the following page. The surface to be painted must be dry and free from dust.

The equipment needed for application and the technical data of the paint are given in the table on the following page and in the data sheet of the product.

Technical data / S22

PAINT		TEKNOCHLOR 150	
Technical data sheet	no.	175	
Paint type		chlorinated rubber top coat	
Colours		by agreement	
Finish		semigloss	
Solids	% by volume	abt. 43	
Total mass of solids	g/l	abt. 820	
Volatile organic compound (VOC)	g/l	abt. 520	
Recommended film thickness			
▪ wet	µm	2 x 230	
▪ dry	µm	2 x 100	
Theoretical spreading rate	m ² /l	2.2 (200 µm dry film thickness)	
Drying time			
▪ dust free, +23°C		after ½ h	
▪ touch dry, +23°C		after 2 h	
▪ overcoatable		by itself:	
		+5°C	+23°C
	min.	after 8 h	after 4 h
	max.	–	–
Thinner, clean up		TEKNOSOLV 9502	
Application methods		airless spray or brush	
Airless spray nozzle		0.015"	
Application conditions			
▪ min. temperature	°C	0	
▪ max. relative humidity	%	80	

Maintenance painting

The surfaces to be painted are cleaned from dirt and easily detachable paint.

Maintenance painting is performed once or twice until a uniform paint film of 200 µm has been achieved.

EPOXY COATING SYSTEM

S23

Coating system for vapour barrier painting of concrete walls and ceilings. Epoxy paint with low solvent content is used for priming and top coating.

	Code
	S23 EH200/2
Paint	
TEKNOPLAST HS 150 epoxy paint	1 x 100 µm
TEKNOPOX FILL epoxy stopper	intermediate filling, if needed
TEKNOPLAST HS 150 epoxy paint	1 x 100 µm
Total film thickness	200 µm

Usage

Used as a moisture proof vapour barrier on concrete and brick surfaces. Moisture permeability of the paint has been determined in VTT Technical Research Centre of Finland (test report no. RAT 6640).

Surface preparation

Surface preparation method is usually grinding or brushing. Detailed instructions can be found in the technical data sheet of the mentioned product.

If there are a lot of holes caused by entrapped air voids on the concrete surface, an intermediate filling must be performed with TEKNOPOX FILL epoxy stopper to zero level.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 4 % by weight). The base must be mixed until homogenous before use. The base and the hardener are then carefully mixed. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

Apply preferably by airless spray as only this method provides the recommended film thickness in a single operation. The temperature of the air and the surface to be painted as well as the relative humidity of the air during the application and the drying must be in accordance with the values given in the table on the following page. The surface to be painted must be dry and free from dust.

The technical data of the paint is given in the table on the following page and in the data sheet of the product.

Technical data / S23

PAINT	TEKNOPLAST HS 150	TEKNOPOX FILL		
Technical data sheet no.	113	917		
Paint type	low solvent content epoxy paint	solvent-free epoxy stopper		
SS standard	185205	–		
Mixing ratio				
▪ base parts by vol.	4	1		
▪ hardener parts by vol.	1	1		
Pot life, +23°C	4 h	poured out on the floor 30–60 min kept in the vessel 20–40 min		
Colours	Teknomix tinting	light grey		
Finish	semigloss	–		
Solids % by volume	abt. 70	abt. 100		
Total mass of solids g/l	abt. 1 050	abt. 1 000		
Volatile organic compound (VOC) g/l	abt. 300	abt. 0		
Recommended film thickness				
▪ wet µm	143	–		
▪ dry µm	100	–		
Theoretical spreading rate m ² /l	7.0	–		
Drying time				
▪ dust free, +23°C	after 30 min	after 6 h		
▪ touch dry, +23°C	after 5 h			
▪ fit for light traffic, +23°C		after 16 h		
▪ fully cured, +23°C	after 7 d	after 7 d		
▪ overcoatable	by itself:	by itself or by suitable primers and top coats:		
▪ in atmospheric exposure	+10°C	+23°C	+10°C	+23°C
min.	after 16 h	after 5 h	as soon as the stopper is set	as soon as the stopper is set
max.	after 2 months	after 1 month	after 2 d	after 24 h
▪ submerged or subterranean	+10°C	+23°C	–	
min.	after 36 h	after 16 h		
max.	after 7 d	after 7 d		
Thinner	TEKNOSOLV 9506	–		
Clean up	TEKNOSOLV 9530	TEKNOSOLV 9506		
Methods of application	airless spray or brush	steel trowel		
Airless spray nozzle	0.013–0.021"	–		
Application conditions				
▪ min. temperature °C	+10	+10		
▪ max. relative humidity %	80	80		

Maintenance painting

Remove flaking paint and dirt from damaged areas by grinding, scraping or blast-cleaning.

Feather the edges of prepared areas and roughen the surface to be painted around the damaged area by grinding.

Touch up the prepared patches with the paint of the system to the original film thickness. Filling and smoothing with TEKNOPOX FILL, when required.

EPOXY COATING SYSTEM

S30

Coating system for concrete basins, tanks and channels. Epoxy coating almost free of solvent is used for priming and top coating.

	Code
	S30 EP500/2
Paint	
INERTA 200 epoxy coating	200–300 µm
TEKNOPOX FILL epoxy stopper	intermediate filling, if needed
INERTA 200 epoxy coating	200–300 µm
Total film thickness	500–600 µm

Usage

Concrete basins, tanks and channels of water supply plants and food processing industry. The coating can be used in potable water tanks (statement ELI 0231 by VTT the Technical Research Centre of Finland).

Surface preparation

Prepare the surface by removing dense laitance and possible brittle top layer of concrete using appropriate methods. Detailed instructions can be found in the technical data sheet of the mentioned product.

If there are a lot of holes caused by entrapped air voids on the concrete surface, an intermediate filling must be performed with TEKNOPOX FILL epoxy stopper to zero level.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 4 % by weight). The base and the hardener of the coating must be mixed until homogenous before use.

The components must be preheated in their vessels to a temperature of +20 – +25 °C before use so that they are fluid enough for the feed pumps. The paint is applied undiluted by hot twin-feed spray. The temperature of the paint in the gun must be +40 – +50 °C. The pot life of the mixture is then 5 min. Brush can be used for touching up.

The technical data of the paint is given in the table on the following page and in the data sheet of the product.

Technical data / S30

PAINT		INERTA 200		TEKNOPOX FILL	
Technical data sheet	no.	157		917	
Paint type		epoxy coating almost free of solvent		solvent-free epoxy stopper	
Mixing ratio					
▪ base	parts by vol.	2		1	
▪ hardener	parts by vol.	1		1	
Pot life, +23°C		20 min		poured out on the floor 30–60 min kept in the vessel 20–40 min	
Colours		Base: white, hardener: black, mixture light grey. (Base is supplied tinted with some limits).		light grey	
Finish		gloss		–	
Solids % by volume		over 96		abt. 100	
Total mass of solids g/l		abt. 1 400		abt. 1 000	
Volatile organic compound (VOC) g/l		abt. 40		abt. 0	
Recommended film thickness					
▪ wet	µm	208–312		–	
▪ dry	µm	200–300			
Theoretical spreading rate m ² /l		4.8–3.2		–	
Drying time					
▪ dust free, +23°C		after 3 h		after 6 h	
▪ touch dry, +23°C		after 6 h			
▪ fit for light traffic, +23°C				after 16 h	
▪ fully cured, +23°C		after 7 d		after 7 d	
▪ overcoatable		by itself:		by itself or by suitable primers and top coats:	
		+15°C	+23°C	+10°C	+23°C
	min.	after 8 h	after 4 h	as soon as the stopper is set	as soon as the stopper is set
	max.	after 36 h	after 24 h	after 2 d	after 24 h
Clean up		in food processing spaces TEKNOSOLV 6060, in other spaces TEKNOSOLV 9506		TEKNOSOLV 9506	
Methods of application		airless two-component spray, e.g. Graco Hydra-Cat		steel trowel	
Airless spray nozzle		0.021–0.026" (turn-nozzle)		–	
Application conditions					
▪ min. temperature	°C	+15		+10	
▪ max. relative humidity	%	80		80	

Maintenance painting

Repair damages in submerged or subterranean objects as soon as they are noticed. Remove old paint from the damaged section by grinding or blast-cleaning. Bevel the edges of the area to be repaired and roughen the surrounding intact surface from the whole area of the touch-up painting.

Concrete underneath is dried.

Touch up the prepared patches with the paint of the system to the original film thickness. Filling and smoothing with TEKNOPOX FILL, when required.

EPOXY TAR SYSTEMS

S31

Coating systems for concrete basins as well as on submerged and subterranean concrete structures. The systems consist of a chemically curing, two-pack reaction paint with a mixture of epoxy and coal tar as binder.

	Code	S31a ET200/2	S31b ET300/3
Paint			
TEKNOTAR 100 purified epoxy tar		1 x 100 µm	1 x 100 µm
TEKNOTAR 100 purified epoxy tar		1 x 100 µm	2 x 100 µm
Total film thickness		200 µm	300 µm

Usage

Submerged and subterranean concrete surfaces.

S31a-ET200/2 Concrete surfaces subjected to splash strain and to occasional immersion strain.

S31b-ET300/3 Concrete surfaces subjected to immersion strain, e.g. wastewater basins and channels as well as liquid manure gutters and basins. Waterproofings of concrete surfaces underground and in bridge structures.

Surface preparation

Surface preparation method is usually grinding, blast-cleaning or etching. Detailed instructions can be found in the technical data sheet of the mentioned product.

Application

The surface to be painted must be clean and dry (the moisture of the concrete must not exceed 4 % by weight). The base and the hardener of the coating must be mixed until homogenous before use. The base and the hardener are then carefully mixed. Take into consideration the pot life of the mixture when estimating the amount to be mixed at a time.

Apply preferably by airless spray as only this method provides the recommended film thickness for primer and intermediate paint in a single operation. The temperature of the air and the surface to be painted as well as the relative humidity of the air during the application and the drying must be in accordance with the values given in the table on the following page. The drying of the paint is quicker at elevated temperatures. The surface to be painted must be dry and free from dust.

The technical data of the paint is given in the table on the following page and in the data sheet of the product.

Technical data / S31

PAINT		TEKNOTAR 100	
Technical data sheet	no.	781	
Paint type		epoxy tar	
Mixing ratio			
▪ base	parts by vol.	2	
▪ hardener	parts by vol.	1	
Pot life, +23°C		3 h	
Colours		black	
Finish		semi-matt	
Solids	% by volume	abt. 65	
Total mass of solids	g/l	abt. 980	
Volatile organic compound (VOC)	g/l	abt. 340	
Recommended film thickness			
▪ wet	µm	307–153	
▪ dry	µm	200–100	
Theoretical spreading rate	m ² /l	6.5 (100 µm)	
Drying time (dry film 100 µm)			
▪ dust free, +23°C		after 10 min	
▪ touch dry, +23°C		after 4 h	
▪ overcoatable		by itself:	
		+10°C	+23°C
	min.	after 12 h	after 4 h
	max.	after 10 d	after 7 d
Thinner, clean up		TEKNOSOLV 9506	
Methods of application		airless spray or brush	
Airless spray nozzle		0.013–0.018"	
Application conditions			
▪ min. temperature	°C	+10	
▪ max. relative humidity	%	80	

Maintenance painting

Remove flaking paint and dirt from damaged areas by grinding, scraping or blast-cleaning.

Feather the edges of prepared areas and roughen the surface to be painted around the damaged area by grinding.

Touch up the prepared patches with the paints of the system to the original film thickness.

At temperatures below +10°C TEKNOTAR 200 urethane tar can be used for maintenance painting.



WE MAKE THE WORLD LAST LONGER

Teknos is a global coatings company with operations in more than 20 countries in Europe, Asia, and the USA. The company employs approximately 1,700 people, and the net sales for 2018 was EUR 408 million. Teknos is one of the leading suppliers of industrial coatings with a strong position in retail and architectural coatings.

Teknos wants to make the world last longer by providing smart, technically advanced paint and coating solutions to protect and prolong. Teknos always works in close cooperation with its customers. Teknos was established in 1948 and is one of Finland's largest family-owned businesses.

For further information, visit www.teknos.com.

TEKNOS GROUP OY
TAKKATIE 3
P.O. BOX 107
FI-00371 HELSINKI
TEL. +358 9 506 091

