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AltroShield™ SF

Solvent-Free Epoxy Coating

Nominal thickness 340 microns

March 2010

Product Description

FeRFA Type 3

AltroShield SF is a durable twin-pack solvent-free epoxy floor coating for use in light to medium duty industrial applications. AltroShield SF offers good abrasion resistance, hygiene and cleanability.

Standard Colours

Light Grey, Mid Grey, Dark Grey, Red, Blue and Green. In common with other epoxy resin finishes, pale colours may show some cosmetic discolouration on exposure to UV light.

Typical Areas of Use

Typical areas of use include:

- Light to medium duty manufacturing
- Warehouses
- Storage areas
- Garages / workshops
- Service corridors
- Plant rooms

Advantages

- Fully sealed surface
- Low odour
- Good chemical resistance
- Good abrasion resistance
- High gloss finish
- Ease of cleaning

Sustainability

Contains over 40% post consumer recycle reducing its impact on the environment (see www.altro6steps.com for further information).

Chemical Resistance

AltroShield SF affords good resistance to a range of commonly used chemicals. However, premature contact with chemicals (including water) during the curing process may give rise to discolouration, staining and variation in gloss. In all cases of chemical spillage, it is essential that the spillage be immediately removed and the surface washed down with clean water, removing water by wet vacuum after operation. Although some chemicals may cause discolouration, this may not affect the durability and integrity of the resin coating. Please refer to Altro and FeRFA Guidance Note No.3 for further information.

Typical Physical Properties

Speed of Cure	Light Foot Traffic	24 hours @ 20°C
	Full Cure	7 days @ 20°C
Application Temperature		10°C to 25°C
Usable Working Life		30 minutes @ 20°C
Intercoat Period		18 to 24 hours @ 20°C
Bond Strength	Onto Concrete	> 3.5 MPa
Taber Abrasion	CS-17 Wheels 1000 cycles 1kg	Average 0.08g weight loss

Packaging

AltroShield SF is available in a 6.3kg, 17kg or 30kg two-part composite pack.

Coverage

Uniform non-porous substrate:

1st coat 240g/m²

2nd coat 210g/m²

Normal concrete substrate:

1st coat 265g/m²

2nd coat 230g/m²

Porous or uneven substrate:

1st coat 360g/m²

2nd coat 315g/m²

Material usage is dependent upon temperature, surface profile and porosity; the stated coverage rates should be referred to for guidance only and cannot be relied upon to determine exact quantities. Priming of porous substrates will improve the coverage rates. Pale colours may require additional coats to cover a dark substrate.

Although stringent quality assurance processes are employed, when colour consistency is essential a single batch should be used where possible.

Storage

Ensure that the product is received in good order and store in a dry, frost free environment, ideally between 15°C and 20°C for at least three days before laying. Excessively high and low storage temperatures will affect the laying performance of the product.

Suitable Substrates

AltroShield SF may be applied to a variety of substrates including, but not limited to, concrete, polymer-modified cementitious screeds and terrazzo. For all proprietary subfloor systems refer to the manufacturer for recommendations and seek further guidance from Altro. FeRFA, The Resin Federation, does not recommend Calcium Sulphate, Anhydrite or Hemi-hydrite screeds for overlayment with synthetic resin surfaces.

Substrate Requirements

Substrates should be dry, structurally sound and free from contamination, friable materials or laitance which may affect either the adhesion or penetration of the resin system. All residues of old paint coatings and dust must be removed.

Substrates to achieve 26N/mm² compressive strength (BS EN 12504-2:2001) and surface tensile strength 1.5N/mm² (BS EN 13892-8:2002). Substrates must include an effective damp proof membrane and contain residual moisture not greater than 5% by

weight (75% R.H.) to BS 8203:2001 (see Altroproof for installations above 75% R.H.).

Because of their method of application, synthetic resin floorings such as AltroShield SF will inevitably follow the profile of the underlying substrate. Variable porosity and profile of the substrate will affect both coverage rates and final appearance.

Please consult Altro or FeRFA Guide to the Specification and Application of Synthetic Resin Flooring for further information.

Substrate Preparation

Surface preparation is the most vital aspect of resin flooring application. Inadequate preparation will lead to loss of adhesion and failure. The substrate in question will dictate the method of preparation. In the case of a concrete floor, preparation by dust enclosed diamond floor grinder may be appropriate, or if of a sufficient area for economic reasons, should be lightly shot blasted to leave a textured surface free from contamination.

If the floor has been treated with a cementitious surface improver, then the surface should be prepared in accordance with the manufacturer's recommendations, or abraded with an STR machine followed by thorough vacuuming.

Treatment of local repairs such as cracks and holes, improvement or modification of levels and removal of high spots, should be undertaken prior to the flooring installation. Thin coatings will reflect the surface texture. High spots may lead to local premature wear. Excessive profiles as a result of inappropriate surface preparation may significantly affect application, coverage and performance.

Please consult Altro or FeRFA's Guide to the Specification and Application of Synthetic Resin Flooring for further guidance.

Planning

Before proceeding with the installation, careful consideration should determine the best way of installing the Altro system. Efforts should be made to minimise day joints and optimise the open time of the

product (i.e. minimise the distance between mixing and laying). It is best to also consider the effect of external influences on the final installation (i.e. direction of light from windows etc.). Time spent at this stage will be invaluable towards the success of your installation. The AltroShield SF system is designed to be laid at in two coats at a total of a nominal 340 micron thickness.

Application

The following application guide is based on laboratory and simulated site conditions. However, when after installations' conditions differ appreciably from those detailed by Altro, the performance characteristics of both mixing and laying may not be as expected. To achieve the best results at all times please endeavour to establish the correct conditions which in turn will allow the materials to be laid effectively, and meet your customer's expectations.

Installation Conditions

Apply in well ventilated areas. Both the slab and air temperature should be greater than 10°C and up to 25°C. It is not advisable to mix and lay epoxy resin products outside the range 10°C to 25°C. Ambient conditions should be maintained at least 3°C above dew point or below 75% R.H. during the initial stages of cure. At site, temperatures below 10°C cure times will be substantially increased unless some form of external heating is used. It must be recognised that the concrete slab temperature will generally be lower than the air temperature, often as much as 10°C, and this will govern the rate of cure. As the resin flooring cures, in condensing conditions moisture vapour may condense onto the surface and cause 'blooming', a permanent clouding of the surface. Cold, wet or humid conditions, and limited air-flow, can result in condensation on the part-cured floor. The workability, open-time, cure development and return to traffic will be significantly affected by ambient conditions.

Mixing Equipment

- Slow Speed Drill (200-500rpm), such as MM17 *
- Mixing paddle, such as MR2 60B *

* All tool number references relate to Refina Ltd
01202 632 270

Product Installation

Using a slow speed drill and paddle, thoroughly mix the base colour for 30 seconds. Pour all of the hardener into the pre-mixed base and mix for a further 2 minutes. Excessively vigorous mixing should be avoided as this can lead to undesirable air entrapment. If the mixing area is not adjacent to the laying area the time required to transfer the mixed material will reduce the open installation time.

Remember to always use the correct PPE. Pour all the mixed material into either a large roller tray, or lay a river of the material onto the prepared substrate.

Using either a low-loss medium pile synthetic roller, or dense foam rubber squeegee, distribute the material evenly and uniformly to fully treat the surface. Finish using a roller to ensure that a uniform and even coverage is achieved. Allow the system to cure for a minimum of 18 hours at 20°C, but no longer than 24 hours at 20°C before over-coating with the second coat. If the overcoating time period is exceeded, the surface should be lightly abraded and vacuumed before further coats are applied.

Ensure good air-flow and ventilation to assist with cure.

Joints

The spacing of movement joints must be determined by the design of the subfloor. To avoid hairline fractures in the coating, live movement joints in the subfloor should be continued through the resin coating. In all instances the type and positioning of movement joints should be agreed at the design stage between all parties concerned. Please refer to Altro or FeRFA's Guide to the Specification and Application of Synthetic Resin Systems for further guidance.

Any open movement joints should be filled with Altroexpand flexible jointing compound. Please see Altroexpand Datasheet for further information.

Protection

Whilst of an extremely durable nature these floor systems must be thoroughly protected from the rigours and abuse that exist during the ongoing contractual works.

The resin floor should reach full chemical cure in 7 days at 20°C. Protection should not be placed in condensing conditions and in all other circumstances a minimum of 48 hours should elapse (at 20°C) before placement. Untreated felt paper will suffice as protection from light traffic, however if protection is required from other trades then the following protection option should be considered. Where heavier access is required then a more suitable medium to take the loadings, such as shuttering ply or Correx by Cordek, should be placed on top of the untreated felt paper. No polyethylene sheets, linseed-treated hardboard, print or dyed card should be placed in contact with the resin surface. All joints in the protection medium should be taped, and all accidental spillages should be recovered immediately with removal and reinstatement of dry protection. Damage will occur to the system if ignored.

Cleaning (during installation)

All tools and equipment should be regularly cleaned using Altrosolve EP to reduce build-up and maintain the quality of the installation. Ensure that the correct PPE is worn at all times.

Disposal

Due diligence must be adopted if accidental spillages of resin solvent occur. Recover using absorbent granules, transferring into a suitably marked container. Disposal of all empty containers and accidental spillages should be in accordance with the local waste disposal authority.

Cleaning Guidance

Steam cleaners and/or hot pressure cleaners should not be used on the floor or walls. A cold/ambient pressure washer may be used if required, but the pressure should not exceed 1400psi. Warm water will offer improved cleaning, but the water temperature should not exceed 60°C. A textured surface will require mechanised cleaning or the use of a long-handled scrubbing brush (deck scrubber), mop cleaning will not be effective.

Regular Cleaning Regime;

- Sweep or vacuum the floor to remove debris
- For normal cleaning, dilute an alkaline detergent such, as Altroclean 44 or similar, by 1:40 in clean water
- Alternatively, dilute by 1:20 for infrequent heavy cleaning
- Liberally apply the water and detergent solution to the floor, scrubbing with a soft-bristle brush or slow-speed (< 400rpm) cleaning machine with a white soft-medium pad for smooth, gloss floors, or using a deck scrubber or scrubbing machine with brushes for textured floors
- Pay particular attention to areas where residues may accumulate, such as internal corners of perimeter coves and around columns etc.
- If possible, allow the detergent solution to remain on the floor for several minutes to break down deposits, but not sufficiently long to allow the solution to evaporate, it should be agitated by brushing/scrubbing during this time
- Remove the solution by wet vacuum recovery and follow this with a fresh water rinse, or use fresh water to rinse the solution into drains if permissible

- It is important that all detergent residue is removed from the surface of the floor. Detergent may become slippery which affects safety, or sticky which attracts and holds more dirt

In some circumstances the customer may decide to use a high solids acrylic-emulsion surface dressing as a barrier layer to ease cleaning and/or maintain gloss. It should be noted that this will also reduce the surface texture and therefore the slip-resistance of the floor finish. This control of slip-resistance, in such cases, rests with those who determine cleaning regime and the application of surface dressings.

NOTE: "Altro Ltd" ("Altro") endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, where Altro has no control over the selection of its products for particular applications, it is important that any prospective customer, user or specifier, satisfies him/herself that the product is suitable for the intended application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing/curing of the material and when the completed work is to be brought into use.

However, as site conditions and the execution of the work are beyond our control, we accept no resultant liability.

Altro's policy is one of continuous research and development and we reserve the right to update our products and information at any time without prior notice.