

Non Slip Paint - Installation Guide



Introduction

The purpose of this document is to give guidance to approved contractors and suppliers who are engaged in the protection of Floors with the use of Astro Non Slip Coat Paint,

Description & Properties

An anti-slip floor paint based on an epoxy ester formulation that dries to a tough durable sheen finish.

It has good resistance to water, oils, mild acids and alkalis.

Recommended Use

Ideal for use on concrete and timber floors. The anti-slip properties are produced by the use of organic powder which eliminates the risk of sparking from metal wheels, therefore providing enhanced safety to potentially slippery areas

Compliance

Complies with "The VOC In Paints, Varnishes & Vehicle Refinishing Products Regulations 2005" EU limit value for this product when used as a binding primer (cat A/h): 750g / litre (2010) when used as a floor paint (cat A/i): 500g / litre (2010)

Recommended Application Methods

Apply product by brush or roller using a long pile, double arm roller.
Do not flood pour paint onto substrate.

Physical Properties

VOC Content (as supplied) : max 499g/litre
Volume Solids: 40%
Mass Solids: 47% - 53% (dependant on colour)
Flash Point: 38 °C
Slip Resistance :

Dry : 52 - Low slip potential
Wet: 44 - Low slip potential
(Results obtained using BS7976 Four S PendulumTest)

Drying Time @ 20 °C

Surface Dry 1.5 hours
Hard Dry 5 hours
Overcoat- after 24 hours
Drying times will be extended at low temperatures.
Do not apply when ambient temperature falls below 5 °C or relative humidity exceeds 90%

Theoretical Coverage

13m² per litre
Rate coverage rate can be affected by such variables as type and condition of substrate, type of application equipment and individual method of application
Thinners: De Aromatised White Spirit

Storage

Packaging: Pack Size: 5 litres
Weight: 0.9 - 1.1kg / 'litre (dependant on colour)
Shelf Life : 2 years from shipment date when stored in unopened, original containers.
Storage : Store in temperature range 5-40 °C

Surface Preparation

Bare Concrete

Do not apply to newly laid concrete. Surfaces to be coated should be at least 4 weeks old and have a moisture content of less than 7% They should also be free from any contaminants or surface laitance (a weak dusty layer on concrete). Traces of grease or oil can be removed using [Astro Mastersolve Cleaning & Degreasing Fluid](#).

Very smooth concrete or concrete with surface laitance should be treated with a concrete etching fluid to ensure good adhesion (refer to application instructions for correct use of this product). Treated areas should be thoroughly washed down and allowed to dry before coating.

Painted Surfaces

Previously painted surfaces should be thoroughly abraded by sanding to improve adhesion and to remove any weak or loose material. It is advisable to test the coating on a small area first to check compatibility with previous coatings.

Application Instructions

Mixing

Mix thoroughly for approx. 5 mins using a wide bladed stirrer. A wooden batten at least 25mm wide is ideal.

Best results are obtained in warm (minimum 15°C), dry conditions with a good through draught. Apply using a brush and/or long pile, double arm roller.

On bare concrete floors it is recommended that the first coat be diluted with approx. 10-20% **Astro 143 Thinners** by volume prior to application. This will act as a binding primer and help seal the concrete surface. Once dried, a second coat can be applied at full strength.

On previously painted floors it is recommended that two thin coats be applied rather than one thick coat. This will prolong the life and performance of the coating.

Drying Time

The product will normally be touch dry in 1.5 hours and can be overcoated after 24 hours. Foot traffic can be allowed on the coated area after 24 hours and heavier traffic after 72 hours.

Concrete floors are always several degrees colder than the ambient temperature and on cold days drying times will be extended.

It is not advisable to apply the product when the ambient temperature falls below 5°C or the relative humidity exceeds 90%

Keep coated areas dry for a minimum of 24 hours following application.

Coverage

Approximately 65m² per 5 litres per coat. Normally two coats are required.

Cleaning

Application equipment should be cleaned using Astro 143 Thinners

Health & Safety

Refer to Material Safety Data Sheet for information on correct handling and application of this product

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Additional Notes on Surface Preparation Methods

Proper surface preparation is essential for the success of any protective coating system. The importance of removing oil, grease, old coatings and surface contaminants (such as laitance) cannot be overemphasised.

THE PERFORMANCE OF ANY PAINT COATING IS DIRECTLY DEPENDENT UPON THE CORRECT AND THOROUGH PREPARATION OF THE SURFACE PRIOR TO COATING.

The most expensive and technologically advanced coating system will fail if the surface pre-treatment is incorrect or incomplete.

Old concrete

Inevitably, old concrete surfaces are often contaminated, worn or degraded. The depth and type of contamination should be checked to ensure that removal and subsequent adhesion can be ensured. It is often advisable to take cores from the most contaminated areas to be sure of penetration depth of contamination and the soundness of substrate.

For instance, oil can penetrate many centimetres into concrete and although the surface may be cleaned, it can migrate back to the surface. Adhesion of the coating may then be compromised or in the worst cases be non-existent.

New concrete

Laitance is always present in new concrete surfaces and should be removed wherever possible. Laitance is formed from a mixture of water, cement and the fine particles of the concrete mix that is brought to the surface when placing and trowelling up. As the concrete cures this mixture dries to form a crust or thin layer on the surface, known as laitance.

The thickness of the laitance may vary from barely measurable, to the worst cases of 6mm or more. Scoring the surface with a steel edge (e.g. a screwdriver) until the main aggregate in the mix is reached, will determine the thickness of the laitance.

Laitance has a relatively poor adhesion to the mass of the aggregate in the mix. It is weak in comparative strength and can therefore either delaminate under traffic conditions and impact or it may easily dust away under abrasion from traffic. Therefore, the new floor surface needs to be bonded to the mass of the aggregate in the base on which it is laid. The heavier the use of the floor and the greater the temperature fluctuations that the floor is

subjected to, the more important this is. Laitance is a major cause of dusty and damaged concrete floors and failure to remove it may lead to failure of the surface treatment.

Techniques

The most frequently used methods of surface preparation of concrete floors are;

- (i) Acid etching
- (ii) Dust-free grit blasting
- (iii) Mechanical planing
- (iv) Scabbling
- (v) Grinding
- (vi) Abrading

Floors and their uses vary enormously. Therefore, each method must be judged on its merits and full account be taken of the working environment in which the preparation has to take place.

For example, scabbling may be a suitable method of preparing a floor in an unoccupied site. However, the resulting dust and noise may preclude it in many other situations. Likewise, acid etching may be satisfactory in many places, but totally unsuitable where corroding fumes may attack bare steel parts in an engineering works.

Acid etching

This chemical etching method of preparation can be effective where laitance is very thin and bases are not too porous. Thick laitance is not effectively removed by chemical etching when applying new surfaces. It should be carried out only after consideration of the suitability in comparison to other forms of floor preparation. However, if carried out properly, it can be fast and cost effective.

Acid etching is used for three reasons: to remove laitance, to provide a slightly textured surface for better adhesion and to clean the substrate. The acid attacks the cement content of the top surface, breaking it down and helping its removal.

(For further information refer to the application instructions for Firwood 2709 - Concrete etching fluid).

Dust-free grit blasting

To date, this is the fastest and most efficient form of old and new floor preparation and laitance removal. The machines used vary in size and are generally operated by specialist concrete preparation contractors or flooring contractors.

Horizontal and slightly inclined surfaces are impacted and abraded by steel abrasive propelled at high velocity by the machine. This is a dry process and floor laying may often continue whilst preparation is progressing in adjacent areas. In many cases, old coatings and other contamination may be removed by this method. The treated surface will be somewhat coarser than an acid etched finish.

Dust-free grit blasting is far quicker, quieter and cleaner than mechanical planing, scabbling, etc. The few disadvantages are “tracking” and the general inability of the machine to remove exceptionally thick, hard or

flexible materials e.g. certain epoxy or polyurethane floor surfaces. “Tracking” is the effect of the machine overlap from one strip of prepared floor to another. It occurs more frequently on floors which are less hard or have thicker laitance than normal. It is seldom a problem when the thickness of the coating to be applied is in excess of 3mm.

Mechanical planing

Often referred to as “concrete planing”, the machines used carry rows of rotating cutters tipped with tungsten. The removal of laitance and other forms of contamination is excellent.

The profile left by the machine is dependant on the spacing and type of cutters installed by the operator.

The surface may be grooved or flat and is more roughened than with dust-free grit blasting.

This system is more frequently used for preparation prior to the thicker (6mm or more) floor coatings being placed. Greater thickness of the substrate can be removed more quickly and effectively than by grit blasting.

Mechanical planing is slower, noisier and nearly always very dusty. The addition of vacuum suction cleaners to the machines does help to reduce dust but seldom eliminates it. “Tracking” may also occur depending on the depth of cut.

Scabbling

This is a heavy duty method of preparing concrete frequently seen on concrete motorways. Scabbling tools are driven by compressed air and the tool head is tipped with tungsten. The tool works by vibrating and impacting the surface of the concrete, thus shattering the surface as it works.

This system is not suitable for preparation if the floor system being applied is less than 10mm.

Scabbling is a slow, very dusty, very noisy and dirty process. On certain surfaces it has the disadvantage that it can damage the concrete or screed to the degree that it weakens the substrate too much. This process is now less frequently used for internal work on floors.

Grinding

Grinding is usually carried out by machines used for polishing terrazzo. It is a useful method of preparing a level floor to remove laitance and expose the aggregate in a substrate.

Grinding is slow and laborious. If dust is to be restricted the operation must be wet. The resultant slurry may also be ground into the surface, which unless very thoroughly cleaned or high pressure hosed away and re-etched, will adversely affect adhesion of a coating. Delays may also be expected while the substrate is allowed to dry.

Abrading

There are a number of other methods of abrading by blasting or using abrasive papers, etc. These may have their limited uses but are not generally used for large areas.

For further information contact our Technical Service Department

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