



High Performance Paint Specification



PS-C006 MAKING CONCRETE CLEAN AND DRY

INTRODUCTION:

New concrete requires water to complete the curing reaction of the cement, and this process can take a considerable time to complete. Most specifications with Portland cement have 28 day strength requirements. The amount of water added to the original mix is far in excess of what is needed for the hydration reaction, therefore excess water must be allowed to escape before applying EPOTEC which is impervious to water.

A possible consequence of applying EPOTEC to concrete if water 'is moving' is osmotic blistering.

TESTING:

A simple method to establish whether the surface is dry is to use a plastic sheet taped to the concrete for 16 hours. If moisture is on the underside the concrete is wet. Refer to PS-C004 The Moisture Content of Concrete.

CLEAN means free from contaminants such as concrete curing agents, laitance, efflorescence and chemical contaminants (e.g. Oil/Grease).

Chemical contaminants are usually associated with old floors, e.g. Machine shops, food processing facilities etc.

TYPES OF CONTAMINATION:

NEW OR AGED CONCRETE/FLOORS:

LAITANCE: Thin weak brittle layer of cement fines on the surface of the concrete. This weak layer does not support the EPOTEC layer and can delaminate.

EFFLORESCENCE: Is a white crystalline or powder deposit on the surface consisting of 'lime' which is again a poor base for EPOTEC.

CHEMICAL ADDITIVES: These are used to accelerate cure or to assist in making the floor less able to absorb water. Any use of additives can reduce the ability of paint to penetrate the concrete and lead to loss of adhesion. A quick check is to drop water onto the concrete and see how quickly it is absorbed. If the water sucks in and spreads out in the surface then it will be ok for painting. If the water is slow to be absorbed or sits on the surface in droplets then further investigation and preparation prior to painting will be necessary. This must be discussed with Coating Technologies Ltd prior to commencing application.

OIL AND GREASE: Generally found in old floors in workshops and garage situations. Oils can penetrate deeply into concrete over time and are difficult to remove. It is not advised to try and "cover up" patches by painting over them. This can lead to stains appearing for oil moving up through the paint and delamination of the coating.

PTO

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Freedom from patent restrictions is not implied.

CLEANING METHOD:

LAITANCE: This can be removed by acid etching (Refer PSC-001) or by a light sweep blast, Soda blast or UHP blast. Ensure the concrete is thoroughly dry and clean before painting.

EFFLORESCENCE: This can be removed by brushing with a stiff bristle brush. However efflorescence is a sign that moisture is migrating through the concrete and the source of this must be located and remediated prior to painting. Heavier build up that cannot be removed by brushing should be dissolved using Hydrochloric acid.

CHEMICAL ADDITIVES: If the surface is showing signs of having these added then the surface will have to be treated to remove them. Water blasting with a strong detergent can be tried first and once the concrete has dried, re test for water absorbency. If detergent has no effect then an acid wash will be required or if this is not practical then a light sand blast, Soda blast, UHP blast or diamond grind will be required. In all cases re test the dried concrete to ensure the treatment has been successful.

OILS AND GREASE: Can be very difficult to remove and may take multiple cleaning attempts to remove these sufficiently to paint. Light surface oil can be washed with solvent until no more is removed on a rag. The surface should then be washed with warm water and detergent.

Cotec have a concrete preparation product that does both the acid etch and oil removal in one operation. See data on Concrete Floorprep.

Heavy soaked areas or grease patches will need to be solvent washed a number of times to remove the worst of the contamination and then we recommend treating the area with a slurry made up using laundry powder and just enough water added to make a thin paste that can be spread onto the contaminated area. Leave this for a day then wash off thoroughly. This operation may need to be carried out a number of times in order to leach out as much of the oil from the surface as possible. Thorough rinsing of the concrete to remove the alkalinity will be needed before drying and painting. Floors that are covered in this type of contamination are often best hard ground back and the top layer of the concrete removed.

REFER TO THE FOLLOWING SPECIFICATIONS FOR RELATED INFORMATION:

PS – C001 Acid Etching of Concrete with Hydrochloric Acid
PS – C004 The Moisture Content of Concrete

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