Courtsol
Sport ground coatings
OUTDOOR INDOOR

HOW TO KNOW IF THE NEW CONCRETE OR CEMENT SLAB IS READY FOR AN APPLICATION

On concrete, the paint or coating does not have the task of insuring a sealant function or preventing the capillary rise. They are not meant as well to fix the slope of the slab, to resist to micro-cracking or to improve the sealing of support.

Before painting or starting the application of acrylic coatings over a concrete or cement floor, it is necessary to undertake several controls.

RESIDUAL HUMIDITY OF THE SUPPORT

Specifications:

The residual humidity rate contained in the concrete should be less than 4 % before seeking to any application over it. A concrete slab floor is considered being dry after minimum 28 days (usually 1 cm per day).

Disorders being observed if too much residual moisture:

The paint film or the coating will peel, blisters will appear. The humidity being trapped in the concrete slab floor will act as a pressure cooker (especially on outdoor project with the sun action) and the paint film or coating will come off.
Depending on the residual humidity still contained in the slab, the paint film will pull some of the concrete with it.

Test of the plastic cloth:

Apply a plastic film on the support and close edges with wide adhesive tape. After 24 hours, control the presence of water drops under the plastic cloth.

Test with humidity meter:

Apply the humidity meter on the support in order to measure the presence of humidity.

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Test with carbide meter:

First, 100 g of material are taken from all thickness of the screed about by breaking the screed with the aid of a chisel and a hammer. The so taken pieces are then crushed in a steel bowl with the aid of a hammer then poured into a measurement container. Steel balls are then introduced, and then a glass bulb containing the carbide of calcium and the whole mixture is being strongly shaken. Humidity contained in the sample of screed reacts then with the carbide of calcium to form a gas and pressure augments inside the container. After some minutes of waiting, you will be able to read pressure on the pressure gauge.

How to avoid or solve the problem:

If the humidity control has been done before the application and if the humidity rate is still above 4 %, a few more days or weeks should be waited until the concrete slab is completely dry. Another test should be made after the waited period.

If the disorder has already been observed (peeling of the film), the paint film or the resin coating should be removed (sanding, grinding…)

POROSITY OF A CONCRETE SLAB

Specifications:

The concrete slap should present enough porosity in order to insure the adhesion of any paints or coatings being applied over it. Smooth concrete should be avoided, because by definition it will not be porous enough. A helicopter finish should be proscribed.

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Disorders being observed if too tide concrete or too smooth:

The paint film and coating will peel, the face of the paint flap in contact with the concrete will be clean. This will be the evidence that there is no adhesion between the concrete and the paint or coating.

Test of the water drop:

Sprinkle some water on the concrete slab and measure with a chronometer how long it does take for the water to be absorbed by the slab. This absorption time should be set from 60 to 240 seconds. If the water stays on surface this will mean that the concrete is not enough porous.

How to avoid or solve the problem:

If the slab is too closed (time > 240 s):

- A light shot-blasting or sanding with diamond disc is highly recommended.
- Apply an acid solution in order to open the concrete. In a watering can, pour 4 liters of water and add 1 liter of hydrochloric acid. Leave on for 1 hour and then rinse. Let dry from 24 to 48 hours. The chemical treatment is always followed by 2 rinses with clear water. To be renewed if necessary. The drying of the slab might take 3 weeks.

If the slab is too porous (time <60 s): apply a first highly diluted paint coat in order to saturate the concrete slab or apply the appropriate primer.

Another indicator can also evidence the lack of porosity, when the usual consumption of the first layer being applied, is divided by 2. Unfortunately, it is already too later!!!!

LAITANCE OF A CONCRETE SLAB

Specifications:

The soft roe or laitance released by the concrete slab can comprise the adhesion of a paint or coating applied over it. It is the result of liquid mixture of water, cement and fines, which tends to upwell to the concrete surface during the hardening process. The surface will be recovered with a fine white film of weak resistance.

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Disorders being observed if evidence of laitance:

The paint film and coating will peel, the face of the paint flap in contact with the concrete will be recovered then by a fine dust film. This will be the evidence that there is no adhesion between the concrete and the paint or coating.

Visual control:

Verify if there is any white upwelling on the surface.

pH test:

Wet a pH paper and concrete with distilled water. Apply the pH paper onto the surface during 30 seconds. This test will allow knowing the alkalinity of the concrete. The obtained value should be within 8 and 12.

How to avoid or solve the problem:

If the value is > 12:

On new concrete, verify that the minimum of drying time (28 days) has been respected.

On dried concrete, apply an acid solution in order to open the concrete. In a watering can, pour 4 liters of water and add 1 liter of hydrochloric acid. Leave on for 1 hour and then rinse. Let dry from 24 to 48 hours.The chemical treatment is always followed by 2 rinses with clear water. To be renewed if necessary. The drying of the slab might take 3 weeks.

DUSTINESS OF THE CONCRETE SLAB

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HOW TO KNOW IF THE NEW CONCRETE OR CEMENT SLAB IS READY FOR AN APPLICATION

Specifications:

The dustiness of the concrete slab can compromise the adhesion of a paint or coating applied over it. It can happen if the concrete slab is old. The surface will be recovered by a fine dusty film.

Disorders being observed if evidence of dustiness:

The paint film and coating will peel, the face of the paint flap in contact with the concrete will be recovered then by a fine dust film. This will be the evidence that there is no adhesion between the concrete and the paint or coating.

test of adhesive test:

Apply one wide adhesive tape of about 30 cm long on the surface and remove it in order to evaluate the proportion of powder being glued on the adhesive.

How to avoid or solve the problem:

Remove the dust by any means (vacuum cleaning, sweeping, sanding…) If the dustiness does reappear, the slab should be replaced.

DISASTER CONSEQUENCES

Necessity very often, to proceed to the total elimination of the deficient paint film or coating on the whole concrete slab.

Impact on the reputation of the applicator and extra costs for the reparation or reinstallation.

As you can see, if one control has been omitted, this will lead to a major disaster, and in many cases to the peeling and/or blistering of the system (during the application and right after). That is why, it is quite important to proceed to those listed controls, which will insure the proper conditions for a good quality application.