

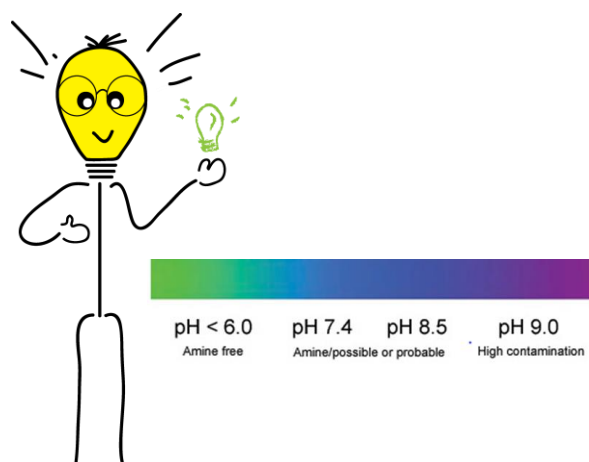
Publication: Carbamate formation

An unwelcome phenomenon.

Sticky white deposit on epoxy resin layers.

Carbamate - epoxy floor finishes.

Carbamate is a sticky white deposit on epoxy resin coating layers. We can demonstrate the presence of excessive amines on a surface by using a special test kit. And we can advise you on any further action to be taken.



Since carbamate is not a very stable chemical compound, it can usually be removed if the right measures are taken.

Carbamate can be dissolved by means of diluted organic acids. The most common procedure is to treat the floor with a 10-20% citric acid solution. If the carbamate formation is severe, a strong smelling, approx. 10% acetic acid solution can be used to remove it. Both acid solutions are worked into the surface using a scrubbing brush, sponge or cleaning machine. The solution is then left to soak in for about 10-30 minutes. After this, the surface is rinsed with clean water. The acid concentration and the duration of the treatment should be adjusted depending on the strength and intensity of carbamate formation.

Carbamate formation is the result of a chemical process, due to the reactive components used in epoxy resin coatings.

The amine hardeners used cause the liquid resin component to react and create a rigid, three-dimensional network – the cured epoxy resin. However, due to their high reactivity, the amines can also unintentionally react with other substances present. For example, they can react with water and carbon dioxide to form carbamate. This manifests itself as a white, matte, sometimes slightly sticky layer.

The occurrence of carbamate on EP coatings is primarily an optical defect; it is annoying if it shows up in the final coating layer and prevents it from meeting the applicable high aesthetic requirements.

Carbamate formation in intermediate layers can cause adhesion problems, e.g. in the case of a primer. This is due to the unwanted reaction of the amines to an intermediate layer, affecting adhesion between the layers. The conclusion is that there are both visual and functional reasons why carbamate deposits should be removed from all layers of a multi-layer coating system.

How to prevent carbamate formation:

Observe the manufacturers' processing instructions and processing conditions, and the time that should be allowed before subjecting the materials to their full loading capacity.

Temperature, relative humidity and dew point distance during the application and curing of the materials are important aspects.

Be sure:

If required, we can install data loggers to record temperature, RH and dew point throughout the implementation and curing of the floors.