

INDUSTRY RECOMMENDATIONS

Information for 3rd person at thermosetting plastic installation

Refers to section:	SVEFF Section for seamless flooring
Valid from:	2015-06-01
First version:	2005-11-20

Work with thermosetting plastic will take place here.

General

When thermosetting plastic is used, questions arise about risks and the working environment. To handle this type of product professionally, both practical and theoretical training on risks and protective measures at work is required.

The regulations that apply per the Swedish Work Environment Authority's regulations AFS 2014: 43 Chemical Hazards in the Working Environment risks §37e-g. This industry recommendation has been prepared by SVEFF (Sweden's Color and Glue Company). SVEFF has also drafted the industry recommendation "Handling and protection instructions for thermosetting plastics work in a temporary workplace" which provides information and rules for contractors in the industry.

This recommendation briefly informs about the most common thermosetting plastics for flooring overall and provides answers to the most common questions that arise in connection with laying of thermosetting floors.

Background

Thermosetting plastic coatings for industrial floors have been used for more than 50 years and each year more than 800,000 square meters of thermosetting plastic flooring is applied in Sweden. The knowledge of the risks are well known. Floor coatings of thermosetting resin are known for their strength, long service life, good function, and hygiene. These good properties emerge after the thermosetting resin is mixed with a hardener, which takes place on-site and when laying the floor. After curing, the industrial floor is finished and completely harmless. No problems caused by cured industrial floors are unknown.

Measures

The unreacted thermosetting resin products used are reactive chemicals, so special attention must be paid to the coating work itself. Installation time for a thermosetting plastic floor is short and must be compared with the 20-30 years of function that the finished floorcoating will yield.

When working with thermosetting plastic, the work area should be separated from other activities with eg. demarcation tape and signs. Signs and boundaries must unconditionally be respected and other work must not occur within the designated area. The rest of the locale is affected very little and other work can continue without restriction if the ventilation is considered to be normal and that the ventilated air is not returned to the room.

It is important to avoid exposure of unreacted thermosetting plastic products, the products do not dry in case of spillage, but are, like engine oil, sticky for a long time. This means that thermosetting plastic components can easily be spread unconsciously in a workplace and thus pose a health hazard. Respect the demarcation zone!

If there is any person who has previously been hypersensitive to thermosetting products, they should not attend the locale during installation.

Epoxy products

Solvent-free epoxy products have low volatility and are virtually odorless. In other words, very little vapor is emitted into the surrounding air and the smell is rarely troublesome. During laying, a faint odor may initially appear during the curing process. This can be a concern for other people in the room but normally does not cause any problems. Solvent-free epoxy products are not flammable.

Before curing, unreacted epoxy products are irritating and corrosive to skin, eyes, and mucous membranes. Besides, unreacted epoxy can be allergenic. The risk in handling is primarily direct contact with skin, eyes and mucous membranes. The user must protect this from happening. Due to the low volatility of epoxy, the exposure of vapors from the coating materials is rather small and very few people experience any problems.

Acrylic products

Acrylic has a characteristic odor that can be felt already at very low concentrations. The smell can be perceived as nauseating, but in the case of coating work, the content of the air is well below (5-10 times less than) the hygienic limit value for long-term exposure. The acrylic products have a short cure time, only a few hours, which limits the time the odor is emitted and with normal ventilation the odor disappears relatively quickly.

The acrylic product contains no solvents but is highly flammable. It is therefore prohibited to light or introduce fire and to smoke at the working area. The finished coating is not flammable. The contractor must take measures for himself and the 3rd person against the smell and vapors in cases where they risk exceeding the hygienic limit value, which is normally arranged with forced ventilation.

Polyurethane products

The polyurethanes used for floor coatings are solvent-free and are virtually odor-free. The smell is rarely perceived as troublesome. Curing agents used in polyurethane laying contain isocyanates. Although the hardener is prepolymerized and intended for work out in the open that coating work entails, it poses a health risk to persons who have previously acquired hypersensitivity, allergy to isocyanates or are atopic. Isocyanates can cause acute problems in the respiratory tract and are allergenic. Therefore, people who are hypersensitive to isocyanates should not attend the laying process. Normal ventilation is usually sufficient for coating work with isocyanates if ventilation is considered insufficient, additional ventilation is provided.

The application of polyurethane flooring pulp rarely causes trouble.

Important points:

1. **Information:** All employees involved should be informed that work with thermosetting plastic is ongoing and know what this entails.
2. **Time expenditure:** largely depends on the preliminary work, cleaning, sanitation and repair of the substrate made before the actual work on the coating, and the availability of the surface. The actual coating work normally takes 1-4 days depending on the type of floor system and the size of the surface.
3. **Ventilation:** Normal ventilation is judged to be sufficient for curing plastic work, if necessary, the ventilation is enhanced by forced fans.
4. **Demarcations:** demarcation tape and warning signs shall be used. Warning signs provide information about the type of thermosetting plastic used, when the premises can be accessed and who can provide additional information.
5. **Product labelling:** Irritant, flammable, allergenic and environmentally hazardous are examples of what it can say on the product labels. The products must only be handled by personnel with special training on the risks and protective measures on thermosetting plastics. Please refer to the product safety data sheet.
6. **Safety data sheet:** Provides, among other things, information on the substances that are included in the product and what properties the product has, who is the manufacturer and contact person, and the recommended "first aid procedure", measures in the event of fire, spillage and how waste management should be used.

7. The preliminary work involves repairing, cleaning and grinding the substrate. For the workers, this entails risks of inhalation of dust, stone spray, and noise and vibrations in connection with grinding/blasting/milling. In some cases, abrasive dust in the air may cause the floor surface to be demarked with plastic foil or other operations must be interrupted.

8. Paving: The thermosetting plastic components are mixed and distributed over the floor surface. Fillers and sand are often added at the workplace. There is always a risk of accidental spread of uncured thermosetting plastic in the workplace.

9. Waste: Special collection containers and plastic bags are used for uncured waste with the text "Allergy-inducing waste". Cured waste is not hazardous waste, nor are the vessels and jars used for mixing and which have then hardened. The contractor is responsible for the proper disposal of the waste that has occurred during the work.

10. What to do if you get a thermosetting-component splash on you?

Dirty clothing is removed. The thermosetting-component of the skin is washed off with soap and water. If thermosetting-components gets into the eyes, immediately rinse with water for a long time and contact an eye doctor.

11. Spillage and Leakage should be taken care of immediately, dried, absorbed with absorbents or sand. The substances in thermosetting plastics pose a risk to the environment and health if they are spread via floor and ground wells to Water/Wastewater or a nearby watercourse. Therefore, wells must be covered and protected at the time of laying.