

General Application Advice

For MC-Estrifan - substrate and substrate preparation

Handling Information

To achieve a long lasting and adequate bond between substrate and MC-Estrifan SN levelling mortars, MC-Estrifan-Haftbrücke or MC-Estrifan epoxy resins, it is necessary to prepare the substrate exactly.

To resist mechanical load, the surface already has to range an adequate strength and load-carrying capacity. The more the load, the higher the strength requirements. In practise, a very smooth surface is not advantageous. So a fine non skid closed surface structure complies with the requirements. Use only open diffusion systems, e.g. mineral products as Estrifan SN, for backwards moisture.

On the strength of water sensitivity, it is not allowed to imbrue magnesite and anhydrite coats.

Remaining humidity of magnesite coat: $\leq 2\%$; of anhydrite coat: $\leq 0,5\%$. Wax layers often found on the surface of these coatings cause serious problems, and particularly asphalt containing screeds because of their deformity under mechanical load as well as their sensitivity to solvents. They may be only coated with special MC-systems for industrial flooring after preliminary tests have been done.

Testing the Substrate

Prior to every screed-treatment the conditions of the substrate must be tested. The following list of questions should be addressed:

- Moisture content of the floor, test by measuring, the calcium carbide method (CM device)
- Strength of the floor, test with the Schmidt hammer, cuttest
- Surface strength, test pull-off strength, average $1,5 \text{ N/mm}^2$, lowest single value $1,0 \text{ N/mm}^2$
- Inspect for damage due to reinforcement corrosion; visual check, chisel, open cracks to determine reinforcement condition
- Detachable layers, old coatings: visual check, scratch and cut test. Possible sample coating
- Contamination, oil spills: visual check, water moistening test
- Test for chloride content: take dust samples from the concrete at graded depths for chloride content analysis
- Check for backwards moisture, consult designer/owner, inspect the drawings and if necessary take a drill core

- Test the evenness, based on DIN 18202, T3, necessary visual check or geometrically correct levelling
- Inspect for voids: Hammer test ("Trailing hammer")
- Inspect for cracks: visual check, using crack gauge, measure width and asses movement
- Check for roughness: visual check and water absorption

To prepare a substrate for coating it must be free of substances acting separating, e.g. oils, fats and separating agents as well as slurries.

Remove loose covers and powders. Old paint and other coatings should also be removed, if not, extensive tests to determine compatibility and adhesion are necessary. Acceptable substrate moisture depends on the coating systems chosen. If cement-bound substrates are coated with mineral bonding-agents or mortar, normally the substrate has to be wetted. Avoid forming puddles.

It is not allowed to coat backwards moistured substrates with epoxy resins, danger of loosing adhesion. Magnesite coats and anhydrite coats would loose their strength in cause of water influence.

Substrate Preparation

The following methods are suitable to the preparation of horizontal surfaces.

Dust-Free Shot blasting (Blastrac-blasting)

Steel-shot is hurled against the ground by a spinner, vacuumed up with grit and returned, for re-use. Since this method is practically dust-free it can often be used in areas where production is on-going. The amount of material removed will depend on the strength of screed and machine type.

Ultra-High Pressure Water Jetting

A water jet with a pressure of more than 400 bar is moved across of the concrete by rotating nozzles. This removes the laitance from screed surface. Preliminary tests are advised to determine the intensity. Drainage for water/solids wash off should be provided. The floor must then be allowed to dry completely before organic coatings are applied.

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Compressed-Air Blasting with Solid Particles (Shot Blasting)

With this method quartz free solid blasting material is projected at the surface via hand held nozzle and using compressed air. This is a very dusty process; but the dust can be much reduced by adding water to the blasting mixture, this is called wet blasting. Preparation is completed by cleaning the surface with a high powered industrial vacuum cleaner.

Milling

This process comprises rotating steel discs which cut grooves into the concrete surface. The depth of cut must be adjusted so as to avoid undue fractu-

ring of the concrete or transmitting vibration into the structure. The milling grooves should be no deeper than 5 mm and each pass of the machine should not overlap the last by more than 5 cm. This leaves a grooved surface which must be after treated with compressed air blasting or dust free shot blasting.

The compressors used to provide compressed air for above must be equipped with oil separators to achieve a separation efficiency of < 0,01 %. After all substrate preparation is completed the floor must be finally cleaned of all dust and loose particles using a high powered industrial vacuum cleaner.

Note: The information on this data sheet is based on our experiences and correct to the best of our knowledge. It is, however, not binding. It has to be adjusted to the individual structure, application purpose and especially to local conditions. Our data refers to the accepted engineering rules, which have to be observed during application. This provided we are liable for the correctness of this data within the scope of our terms and conditions of sale-delivery-and-service. Recommendations of our employees which differ from the data contained in our information sheets are only binding if given in written form. The accepted engineering rules must be observed at all times.

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