

# Nanten HMESD Epoxy

**Heavy-duty coating compound for premises requiring static electricity discharge control**

## PRODUCT TYPE

Nanten HM ESD Epoxy is epoxy resin with extremely good resistance to wear and chemicals for ESD grindable render compounds for both old and new concrete floors. Used as a primer, a binder in grindable compounds and as a varnish of Nanten HM ESD coating compounds in premises protected against static electricity discharge. Contains extremely low levels of volatile organic compounds (VOC). The surface is hygienic, easy to clean and contains no components promoting the growth of bacteria, and no biocides. The product has good UV resistance and develops durability faster than normally also at low temperatures. The compound meets the requirements of standard IEC EN 61340-5-1/2.

## APPLICATION

For premises exposed to problems caused by static electricity discharge and requiring ESD properties. Floor coating for production, assembly and warehouse facilities of electronic, medical and chemical industries as well as computer rooms and printing houses.

## PROPERTIES

Extremely good electrical properties, also concerning personal safety (Vb). Extremely good mechanical and chemical resistance. Durable to continuous exposure to oils, greases, fuels, mild acids, salts and temporarily to the majority of acids and alkali used in industries. Resilience class BC5 (by 54/BLY 12).

## TECHNICAL DATA

### Colours

Colour of the coating comes from the conductive sand and the colour sand or sand mixture.

**Gloss level** Full gloss.

### Material consumption

Resin consumption approx. 1.3 l/m<sup>2</sup> / 3-4 mm in ESD grindable coating. In priming 0.2 – 0.3 l/m<sup>2</sup>, second priming layer with Nanten ESD Primer. In varnish 0.15 – 0.20 l/m<sup>2</sup>

### Mixing ratio

(Part A) resin 2 parts by volume and (Part B) hardener 1 part by volume. Filler sands, > 40% ESD sand and the rest are colour sands of your choice.

### Package

Part A in 10 l tin containers, part B in 5 l plastic containers or both parts in 200 l barrels.

### Application time (+ 20°C)

Approx. 20 - 30 minutes when poured on the floor. With higher temperatures the time is shorter.

### Drying time

Dry to touch 7 h (+ 25°C) and 14 h (+ 15°C). Dry, durable to light traffic in approx. 12 h (+ 25°C) and > 24 h (+ 15°C). Fully cured in approx. 7 days.

### Application method

Spread with a variable trowel and finish with a steel trowel or mechanically with a grinding machine. For priming and varnishing use the appropriate roller.

### Dilution

For grinding render the resin is not diluted. Varnish diluted 30 - 40 vol. -% with Nanten A Epoxy Thinner.

### Cleaning of tools

Tools can be cleaned with e.g. ethyl acetate.

### Storage

+ 5°C ...+ 25°C, max. storage time 6 months. Store in a warm room, in tightly sealed original containers.

## TECHNICAL PROPERTIES ESD

### ESD properties

Meets the requirements of IEC EN 61340-5-1/2:

<b>Resistance to ground, Rg</b>	< 1 G Ω
<b>System resistance, R<sub>sys</sub></b>	< 35 MΩ tai
<b>Body charge, V<sub>body</sub></b>	< 100 V

### Membrane thickness

Compound total thickness approx. 4 mm.

**Density (+ 25°C)** Binder density is approx. 1.1 kg /

**Solid matter content** About 100% by volume.

**Final hardness** Shore D 78.

**Fire class** B<sub>FL</sub> -s1, SFS-EN 13501-1

### VOC (calculated)

VOC in application mixture 25 g /l. EU VOC 2004/42/EC (cat A/j) max. 500 g/l (2010).

## DIRECTIONS FOR USE

### Surface requirements and application conditions

Concrete strength class should be at least C25/C30 and wear resistance class 3. Concrete relative humidity should be below 95% and surface temperature at least 3 °C above

dew point. Air, surface and coating temperature should be over + 15°C and relative humidity below 80% during the coating application and drying.

### Surface preparation

#### New concrete floor

Remove laitance and any non-cured cement by surface grinding, shot-blasting or milling. All loose material which lowers adhesion should be cleared away and cement dust carefully removed with a vacuum cleaner.

#### Old concrete floor

Remove laitance and deteriorated concrete by surface grinding, shot-blasting or milling. All loose material which lowers adhesion should be cleared away and cement dust carefully removed with a vacuum cleaner. Soiled floors should be washed and rinsed with synthetic detergent before any works on the substrate. Remove completely any old films of paint in the substrate.

#### Priming

Prime with Nanten HM Epoxy. Moist concrete bases with relative humidity higher than 95% should be primed with Nanten M Primer which is intended for moist concrete. The primer should seal all the pores in the concrete and form a uniform tight and intact film on the surface. The copper tapes used for grounding are fixed to the cured surface of HM Primer. The actual priming for the coating compound is made with the conductive Nanten ESD Primer as instructed.

#### Filling

Small hollows and cracks should be cleaned and filled with epoxy filler, such as a filler prepared with HM ESD Epoxy and fine filler sand. Larger and more extensive filling, levelling and pouring can be performed with a filling/levelling mixture made of Nanten HM ESD Epoxy and filler sand (0.1 - 0.6 mm).

#### Mixing of components

First stir part A and part B of HM ESD Epoxy in their own containers, calculate the required amount of ready mixture, considering the surface area to be coated and the mixture application time. Blend the components into one another in the correct ratio and continue with a mixer at low speed for about two minutes, trying to avoid mixing any air into the mixture. Add the required quantity of conductive Nanten ESD sand (> 40%) and the colour sands while continuously mixing. Continue mixing for about a minute, reaching into the corners of the container. Binder and filler sand can also be mixed in vertical shaft mixers or concrete mixers.

### Coating

If the coating of ESD Primer is older than two days, new coating of ESD primer should be applied. Pour the mixed compound (HM ESD Epoxy + ESD and colour sands) to the floor in a uniform strip and spread with a variable trowel until achieving the required layer thickness. After spreading, compact the compound either manually with a steel trowel or with a machine by grinding it to a level surface.

### Varnishing

After compacting the coating compound with grinding movements, it should be varnished with diluted Nanten HM ESD Epoxy. We recommend applying the varnish in two layers, whereby the surface will become easy to clean and hygienic. Varnish layers with excessive thickness can deteriorate the conductivity of the floor..

### Skirting boards / foldups

Skirting boards are made from the same grindable epoxy render, but the render is stiffened by means of thickening fibre (Sylothix) to facilitate processing. Skirting boards are normally made with the minimum height of 100 mm, either straight or rounded, with an inner angle.

### Care of the coated floor:

The floor should be kept clean to maintain its functionality and application of floor wax is prohibited. See [www.nanten.fi / products / cleaning and care instructions](http://www.nanten.fi/products/cleaning_and_care_instructions).

### APPLICATION SAFETY:

See [www.nanten.fi / products / material safety data sheets](http://www.nanten.fi/products/material_safety_data_sheets).

		
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0809 -CPR- 1073		
EN 1504-2:2004		
Coating/screet		
Wear resistance	Weight loss < 3000 mg	HM ESD Measured values 1722 mg
Capillary absorption and water permeability	$w < 0,1 \text{ kg/m}^2 \times \text{h}^{0.5}$	0.01 kg
Impact resistance	Class III: $\geq 20 \text{ Nm}$	60 Nm
Adhesion strength in tensile test	$\geq 2.0 \text{ N/mm}^2$	3.0 N/mm <sup>2</sup>
Fire behaviour	B <sub>fl</sub> -s1	B <sub>fl</sub> -s1
Compression strength		
Conductivity	IEC EN 61340-5-1/2	
* break in concrete		

Even though the technical details of the product description are based on our best knowledge and experience, the above-named information should always be regarded as indicative. The user should make sure that the product is suitable for the application. If working contrary to these instructions, the user is solely responsible for any possible resulting damages and consequences.