

# Nanten Epoxy Barrier

A compound for encapsulating and sealing hazardous VOC, PAH, PCB, radon and other gases into structures



## PRODUCT TYPE

Nanten Epoxy Barrier is a 2-component compound for encapsulating hazardous compounds and residues (VOC) (PAH) (PCB), asbestos, casein, microbes and radon as well as other gases, which occur in structures. It also seals and eliminates odours caused by fuels, oils and similar absorbed in the substrate. Due to its extremely low content of VOCs and its gas tightness, the Epoxy Barrier encapsulation of hazardous substances is suitable for all Green Building construction projects, which promote sustainable development, and for new construction or renovation sites, which intend to apply for indoor air classification / environmental certificate (LEED, BREEAM).

## APPLICATION

Encapsulation of hazardous substances and compounds, which have absorbed in the concrete base and cause problems in the indoor air of sites under renovation, e.g. schools, day care centres, hospitals, etc. Used as a sealing layer under ecological epoxy coatings Nanten SL BIO and Nanten HM BIO, other Nanten coatings and various floor coverings (plastic carpets, laminate, parquet, tiles, etc.). For improving indoor air in new buildings by preventing radon, other gases and odours arising from the ground from entering the room air. As HM Epoxy Barrier is completely watertight, it also blocks moisture from seeping into sub-structures, such as from the seams of slabs, and prevents possible damages.

## PROPERTIES

Safe to use, odourless and solvent-free. Contains no hazardous accelerators or components.

*Due to its ability to seal off VOCs, it can be used to control the decomposition products of coatings absorbed in concrete structures, and PAH compounds contained in structures. As a sealing layer, Nanten Epoxy Barrier can be used to control the passage of hazardous substances of structures as well as gases (incl. radon) into indoor air.*

Vahanen Oy, a research on permeability of hazardous substances 24.1.2014.

## TECHNICAL DATA

**Colours** Light-coloured liquid

### Coverage

Consumption in encapsulating treatment about 0.7 kg/m<sup>2</sup>, depending on substrate porosity. 0.2-0.3 kg/m<sup>2</sup> when used as a primer.

## Mixing ratio

(Part A) resin 1.7 parts by volume and (part B) hardener 1 part by volume. 2 : 1 by weight.

## Package

Part A in a 12 kg container and part B in a 6 l can. A total of 18 kg in a set.

## Application time (at +20°C)

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

## Curing time

Dry to touch in 11 h (+25°C) and 21 h (+15°C). Dry, endures light traffic in about 24 h (+25°C) and > 24 h (+15°C).

## Application method

Spread with a roller, serrated trowel or rubber trowel.

## Dilution

Do not dilute.

## Tools clean-up

Tool cleaning product, such as ethyl acetate.

## Storage

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

## TECHNICAL PROPERTIES

**Film thickness** 250 – 700 µm

**Density (+ 25°C)** Mixture density 1.11 kg/l.

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

**Final hardness (+ 20°C)** Shore D 80.

### VOC (calculated)

VOC in application mixture of Nanten HM Epoxy Barrier 0 g/l.  
EU VOC 2004/42/EC (cat A/j) max. 500 g/l (2010)  
LEED IEQ 4.2 IM Coatings < 100 g/l, 2014.

### Surface requirements and conditions

The tensile strength of the concrete should be at least 1.5 MPa and the relative humidity of substrate below 95% or 4.5 weight-% and surface temperature at least 3°C over dew point. During the drying in encapsulating treatment, the temperature of ambient air and substrate should be above +10°C and relative humidity below 80%.

### Surface preparation

#### New concrete floor

Remove laitance and any non-cured cement either by surface grinding or shot-blasting. 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 a synthetic detergent before any works on the substrate.

### Filling

Small hollows and cracks should be cleaned and filled with epoxy filler made of e.g. Nanten HM Epoxy and fine filler sand.

### Mixing of components

Premix part A and part B of the Epoxy Barrier epoxy sealant carefully in their original containers. Blend the components into one another and continue with a mixer at low speed for about two minutes, trying to avoid mixing any air into the mixture. Do not divide the components.

### Priming

Pour the mixed Epoxy Barrier to the floor in a uniform strip and spread with a roller/rubber trowel. Coverage approx. 0.2-0.3 kg/m<sup>2</sup>. Epoxy Barrier can be used as a primer of Nanten coating systems.

## Encapsulating treatment 1 /floor coating

### Epoxy Barrier + Nanten BIO Epoxy coatings

For the encapsulation of hazardous substances, about 0.3 kg/m<sup>2</sup> of Epoxy Barrier is spread as a primer layer. Another bulky layer of about 0.4-0.5 kg/m<sup>2</sup> of Epoxy Barrier epoxy sealant is spread crosswise on top of the dried primer layer. Nanten SL BIO Epoxy Coating should be spread not later than in 48 h after the encapsulating treatment. If using Nanten HM BIO grindable epoxy coating methods, a new layer of primer/roughening sand should be applied on top of the encapsulating treatment to ensure adhesion and facilitate spreading of the grindable coating. To ensure gas-tightness, the total consumption of Epoxy Barrier sealant of hazardous substances should be 0.7 kg/m<sup>2</sup>. Other Nanten floor coatings may also be used on top of the encapsulating treatment and these should be applied, following the Nanten method instructions.

## Encapsulating treatment 2 /flooring

### Epoxy Barrier + various floor covering materials

For the encapsulation of hazardous substances before the application of floorings (plastic carpet, laminate, clinker,

parquet, tiles, etc.), about 0.3 kg/m<sup>2</sup> of Epoxy Barrier is spread as a primer layer. Another layer of about 0.4-0.5 kg/m<sup>2</sup> of HM Epoxy Barrier epoxy sealant is spread crosswise on top of the dried primer layer. Wet Epoxy Barrier is filled with 0.3-0.8 mm quartz sand to improve the adhesion of floor screeds or grout used with the flooring work. Check the suitability of the floor screed for the intended use and the application instructions from the manufacturer of the product. To ensure gas-tightness, the total consumption of Epoxy Barrier sealant of hazardous substances should be > 0.7 kg/m<sup>2</sup>.

### Encapsulating treatments / wall and floor joints and leadthroughs

The tightness of structural joints is ensured by using the Nanten Barrier sealing strip during the treatment. More information is available in Nanten method instructions / Encapsulation of hazardous substances 1 and 2.

### Handling conditions

Relative humidity of the substrate should be below 95% and temperature at least 3°C above dew point. During the drying of the barrier of hazardous substances the temperature of air, substrate and coating should be above 10°C and RH below 80%.

### APPLICATION SAFETY:

See [www.nanten.fi/products/material\\_safety\\_data\\_sheets](http://www.nanten.fi/products/material_safety_data_sheets).

	
Nanten Oy Teollisuustie 6, FI-04300 Tuusula	
14	
0809-CPR-1037	
EN 13813:2002	
Protection and repair agent for concrete structures – Coating	
Adhesion strength in tensile test	≥ 2.0 N/mm <sup>2</sup>
Capillary absorption and water permeability	w < 0,1 kg/m <sup>2</sup> x h <sup>0,5</sup>

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.