





-  WATERPROOFING FOR TANKS AND RESERVOIRS
-  IMPERMEABILIZZANTI LIQUIDI PER VASCHE E SERBATOI
-  IMPERMÉABILISATION DE CUVES ET RÉSERVOIRS
-  HYDROIZOLACJE DO ZBIORNIKÓW



NORPHEN FOOD

Non-toxic coating for tanks intended for food contact

Description

NORPHEN FOOD is a two component epoxy-polyamminic product, free from solvents, aromatic amines and phthalic anhydride derivatives specifically designed for coating tanks containing liquids, flour or grain food. Component A is a viscous liquid, with a neutral colour used as an universal basecoat for all versions of the product. Pigments are contained in component B which is available in nine standard colours reproduced in the NORPHEN FOOD colour chart.

The main properties of NORPHEN FOOD are:

- thixotropy mixture that makes NORPHEN FOOD ideally suited to vertical areas of tanks and reservoirs;
- complete product suitability for coatings intended for food contact;
- chemical resistance of the film to wine, beer, liquor, oil, water, and flour;
- impermeability of the film to stored liquid food;
- washability and chemical resistance against cleaning products for hard surfaces normally used in the food industry;
- gloss finish with textured effect.

All raw materials used to produce NORPHEN FOOD are listed in the positive list of monomers and additives used in the manufacture of plastic material intended for food contact in compliance with the most recent Italian and European regulations. NORPHEN FOOD is a suitable product for food contact, compliant with the Ministerial Decree No. 03/21/73 and its following amendments concerning simulant liquids provided by this legislation.

Where to Use

NORPHEN FOOD is used for the realization of waterproof coatings of food storage concrete or metal tanks and reservoirs and for all foods which shall undergo migration testing with the following simulants:

1. aqueous solution of acetic acid 3% (weight to volume);
2. aqueous solution of ethanol 10% (volume to volume);
3. water;
4. rectified olive oil;

NORPHEN FOOD is compliant with and certified according to the Ministerial Decree No. 03/21/73 and following amendments. In addition to the overmentioned simulants, NORPHEN FOOD is also suitable for contact with hydroalcoholic solutions at 45% and 90% by volume of ethanol.

Application





Substrate Preparation

1. *concrete underground tanks previously externally or above ground waterproofed:*
 - carefully check the substrate to ensure it is a suitable and structurally sound base;
 - subject to the existing conditions of the area, the required treatment shall be chosen between the following:
 - hot water pressure washing;
 - washing by means of acids;
 - sanding;
 - diamond grinding;
 - scarifying;
 - sandblasting.

In this way dust, dirt, grease, oil, old adhesive or paint, laitance, rust, mildew and other extraneous materials will be removed.

- substrate depressions and inconsistencies must be compensated with products suitable to be coated with epoxy resins (RASANTE 2000 2K, GROVE RIPRISTINO or GROVE RAPIDO, GROVE RASANTE).



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2. *underground tanks in the absence of external waterproofing:*
 - carefully ensure that the substrate is homogeneous, free of loose elements and clean. Then make it ready for the application of W3 IMPERMEABILIZZANTE (see product technical data sheet);
 - apply GLASS MESH reinforced W3 IMPERMEABILIZZANTE (coverage: approx. 1.5 kg/m²) and allow at least 48 hours at +25°C and 50% RH or 72 hours at +20°C 50% RH for full product curing;

3. *metal tanks:*
 - steel surfaces (not stainless) must be free of rust and concretions and perfectly degreased. In case of existing oxidized surfaces, remove oxide by abrasion or sandblasting grade SA 3 to meet Swedish Standard (SIS) 055900:1967 equivalent to SP5 as outlined by the Steel Structures Painting Council (SSPC) standard or "1st grade quality" as outlined by the British Standards Institution, (BS) 4232:1967. The Roughness Profile shall comply with the Standard Rugotest No. 3 grade N11 as outlined by ISO guidelines;
 - apply a coat of NORPHEN FONDO MA and then allow no longer than 24 hours for recoating with NORPHEN FOOD.

Product Preparation

Pour NORPHEN FOOD component B into component A and mix the product thoroughly with a professional mixer until achieving a uniform colour mixture.

Note: the viscosity of the product can be corrected (if necessary) with SOLVENTE PER NORPHEN FOOD added in quantities up to 5% (on A+B), but in this case it shall be taken into consideration that the dilution may vary product properties and chemical resistance. In fact, the product was designed to be used as it is.

Product Application

- NORPHEN FOOD shall be applied with a roller, brush or *airless spray* in one or two coats depending on desired thickness. For flow rate parameters, please refer to the specific section of the data sheet;
- between two subsequent coats of product, at least 24 hours at 15°C, 14 hours at +20°C, 12 hours at +25°C must be allowed;
- between the first and the second coat a light sanding must be carried out to facilitate adhesion;
- if the product is applied by roller or brush with temperatures above +25°C, NORPHEN FOOD should be catalyzed in small quantities caused by a substantial reduction in the *pot-life*;
- clean used equipment before product hardens with ethyl alcohol, SOLVENTE PER NORPHEN or acetone;
- if the time interval between product application and when the tank is first used is more than 8÷10 days, the inner surface shall be rinsed with water to remove dust deposited by electrostatic effect.

Coverage

Theoretical consumption: 450-550 g/m² per coat, varying depending on the nature and roughness of the substrate.

Coverage: to achieve 1 mm of thickness, 1.45 kg of product (A+B) must be applied per square meter.

Application Methods

Application with roller: short haired roller.

Application with airless spray:

- nozzle diameter: 0.38÷0.53 mm that is size 15÷23 mil
- output pressure: 200÷300 bar

Warnings and Special Instructions

- Mix components A and B according to the precise ratios. In the case of partial use of the package, carefully weigh the two components.



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- The product should be stored at temperatures between +15 and +35°C. At lower temperatures the product is too viscous for proper application.
- Do not apply when relative humidity above 80% RH, or at temperatures below +15°C.
- The product is irritating. Please read the MSDS of the product carefully before application.

Specifications

Bulk Density, UNI 8310	g/cm ³	Comp. A	1.47 ± 0.03
		Comp. B	1.45 ± 0.03
		A + B	1.45 ± 0.05
Pot-life, UNI EN ISO 9514	min	T = +23°C	50 ± 5
		T = +35°C	10 ± 5
Dry residue (A+B), UNI 8309	%	99.2 ± 0.4	
Application temperature	°C	from +15 to +35	
Application maximum relative humidity	% RH	85	
Complete cure (23±2°C, 50±10 %RH)	g	7	
Superficial drying time (tack free), UNI EN ISO 1517	hours	T = +15°C	12 ± 1
		T = +20°C	8 ± 1
		T = +25°C	6 ± 1
Operating temperature	°C	from -10 to +65	
Adhesion to concrete (with a substrate compliant with UNI EN 1323, 2 coats of 300 µm of NORPHEN FOOD), UNI EN 1542	MPa	> 2.70	
	-	with cohesive failure of substrate (type A)	
Permeability to water vapour - µ (400 µm thickness free film), DIN 52615	µ	18000 ± 2000	
Abrasion resistance (Taber test: 2x500 g mass, H22 abrasive disc, 1000 rpm), UNI 8298-9	mg	92 ± 4	
Liquid-water transmission rate (permeability), 600 µm films in two coats, EN 1062-3	kg/(m ² h ^{0.5})	0.07 ± 0.02	
	-	Class III (EN 1062-1)	
crosslinking ratio (A : B)	by weight	2.10 : 1.00	
	by volume	2.07 : 1.00	

Note: test methods are in accordance with the standard referred to in the table.

Chemical Resistance

30% hydrochloric acid in water	4
10% sulfuric acid in water	4
20% phosphoric acid in water	4
30% acetic acid in water	1
10% lactic acid in water	4
5% tartaric acid in water	4
15% ammonia in water	5
soda (sodium hydroxide) 30% in water	5
3.5% hydrogen peroxide (12 volumes)	5
aqueous solution of acetic acid (1%) and hydrogen peroxide (0.5%)	5
acetone	4
ethyl acetate	4
denatured ethyl alcohol	4
cyclohexane	5

* Compliant with UNI EN ISO 2812-1:1996 - Method 2 (continuous contact with absorbent material).



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The effects on the coating are evaluated as shown in Appendix A.

Labelling, packaging and storage

Hazard symbols	Comp. A		X _i , N
	Comp. B		C
Packaging	Comp. A	0.85 kg	tot. 1.25 kg
	Comp. B	0.40 kg	
	Comp. A	2.10 kg	tot. 3.10 kg
	Comp. B	1.00 kg	
	Comp. A	8.40 kg	tot. 12.40 kg
	Comp. B	4.00 kg	
Storage	24 months in original packaging, in a covered and dry place. At temperatures from +15°C to +35°C.		

Legal notice

Tips on how to use our products match the current state of our knowledge and do not imply any assumption of responsibility or/and liability for the final result of works. Therefore, customers are not exempt from the responsibility to verify the suitability of products for use and final aims through preliminary tests. The website www.nordresine.com contains the latest revision of this datasheet.

Edition

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