



ESC FONDO

Base coating for static dissipative or conductive floors

CE marking:

- EN 13813 - Designation: SR-B2.0-AR0.5-IR10-ER3 = 250 kOhm

Certifications:

- EN 13501-1 - Class: Bfl-s1



TECHNICAL SPECIFICATIONS



FIELD OF APPLICATION



APPLICATIONS



Description

ESC FONDO is the base layer of the special ESC epoxy resin coating system used to create floors with special electrical properties:

- anti-static/dissipative: vertical and superficial electrical resistance below 1 GOhm (conforming to the requirements of the IEC EN 61340-5-1 standard "Protection of electronic devices from electrostatic phenomena - General requirements");
- conductive: vertical and superficial electrical resistance not exceeding 1 MOhm (conforming to "Class I" requirements (EN 1504-2) "Floors of environments in which explosive substances are handled").

ESC FONDO is a bi-component product made up of:

- component A: a mixture of liquid epoxy pre-polymers and conductive fillers;
- component B: co-polymerisation amine.

On the whole, the ESC package is made up of:

- dissipative mat to be applied before the resin: SELF-ADHESIVE COPPER TAPE;
- base coat: ESC FONDO;
- top coat: ESC FINITURA
- cleaning detergent with anti-static and dissipative properties: ESC CLEANER.
- protective wax with anti-static and dissipative properties: ESC WAX

CE marking

- ▶ EN 13813

The ESC package (of which ESC FONDO is part) complies with the principles envisaged in the EN 13813 standard ("Screed material and floor screeds - Screed materials: Properties and requirements") with the following designation:

→ SR – B2.0 – AR0.5 – IR10 – Bfl-s1 – ER3 250 kOhm

- Synthetic resin screed (SR).
- Bond strength: > 2.0 MPa (B2.0).
- BCA wear resistance:
- Impact resistance: 10 Nm (IR10).
- Fire reaction: Class Bfl-s1.
- Electrical resistance (superficial) R3: 250 kOhm (ER3 250 kOhm).

Colour

ESC FONDO is available in the graphite grey version.

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Field of application

ESC FONDO constitutes the base layer (uniformly conductive) of the ESC package (epoxy system for creating high-performance coatings and floors in EPAs – Electrostatic Protected Areas).

The ESC package of which ESC FONDO is part is used for floors made of:

- electronics industries (assembly and production of semi-conductors);
- operating theatres;
- environments with risk of explosion;
- assembly plants and automated warehouses;
- calculation and data processing centres (DPC).

General preparation of the laying support

- The support must be carefully examined to ascertain that it is a suitable and structurally sound base.
- Remove dust, dirt, grease, oil, old adhesives or paints, efflorescence, rust, moulds and other foreign matter by choosing the most appropriate treatment among those indicated below:

→ Acid wash.

→ Sanding.

→ Diamond-wheel grinding.

→ Milling.

→ Shot peening.

- Repair any depressions and loose parts of the floor with:

→ MALTA RAPIDA 13, for thicknesses equal to or above 2.5 mm.

→ MALTA RAPIDA 12, for thicknesses below 2.5 mm.

Specific preparation of the laying support

- ▶ Preparation of the base support for the application of the dissipative mat

To favour the adhesion of the SELF-ADHESIVE COPPER TAPE, the surface must be smooth.

If the support has not been levelled with MALTA RAPIDA, apply one coat of FONDO SL in the following ways, depending on the support's humidity content:

→ Supports with humidity below or equal to 3% (measured with the carbide method, according to the ASTM D4944 or UNI 10329 standard):

- Support prepared with an acid wash, sanding or diamond-wheel grinding: apply one coat of FONDO SL with a roller.
- Support prepared with shot-peening or milling: apply one coat of FONDO SL using a trowel, loaded at 50% by weight with 0.1–0.3 quartz sand (for shot-peening) or 0.3–0.9 quartz sand (for milling).

→ Supports with humidity above 3% and up to 7% (measured with the carbide method, according to the ASTM D4944 or UNI 10329 standard), or concrete supports cast level with the ground, without any barrier against rising damp:

- Apply one coat of SW SOLID (A+B) diluted 1:3 by weight with water (see Technical Sheet) as a consolidating base coat.
- Wait 2–3 hours for the consolidating agent to dry partially.
- Apply 1.5 kg/m² of W3 IMPERMEABILIZZANTE with or without fibreglass reinforcement mesh (see Technical Sheet).
- Wait 48 hours for the product to cure then apply one coat of FONDO SL using a roller, on which the SELF-ADHESIVE COPPER TAPE can be applied, which will constitute the dissipative mat.

→ Stabilisation of moving cracks:

Stitch the cracks with steel bar sections and PLAST EPO (see Technical Sheet) as described below:

- Prepare sections of the corrugated rebars 30–50 cm long with 8–10 mm diameter.
- Use a diamond grinding wheel to make cuts perpendicularly to the crack: they must be 2–3 cm deep, with suitable width and length in relation to the size of the bar and roughly 50 cm apart.
- Carefully suck up the dust from the grooves.
- Pour PLAST EPO into the grooves until they are roughly half-filled.
- Insert the rebars and cover them with PLAST EPO.
- Adjust the level of PLAST EPO using a small trowel.

- ▶ Application of the dissipative mat

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The installation of a dissipative mat beneath the floor stems from the need to connect the treading surface to the ground, to prevent the build-up of dangerous electrostatic charges deriving from people walking or objects rolling on the floor (triboelectricity).

The dissipative mat is made by applying the SELF-ADHESIVE COPPER TAPE (conductive adhesive) along the two dimensions of the floor so as to create a grid.

The electrical conductivity between the various filaments of the grid is guaranteed by the conductive adhesive near the nodes.

The shape and arrangement of the dissipative mat can vary in relation to the parameters specified by the designer. In the absence of a specific design, the standard arrangement is shown below:

- prefer a rectangular or square shape for the mesh structure;
- divide the surface into portions as far as possible of the same size (see Fig. 1);

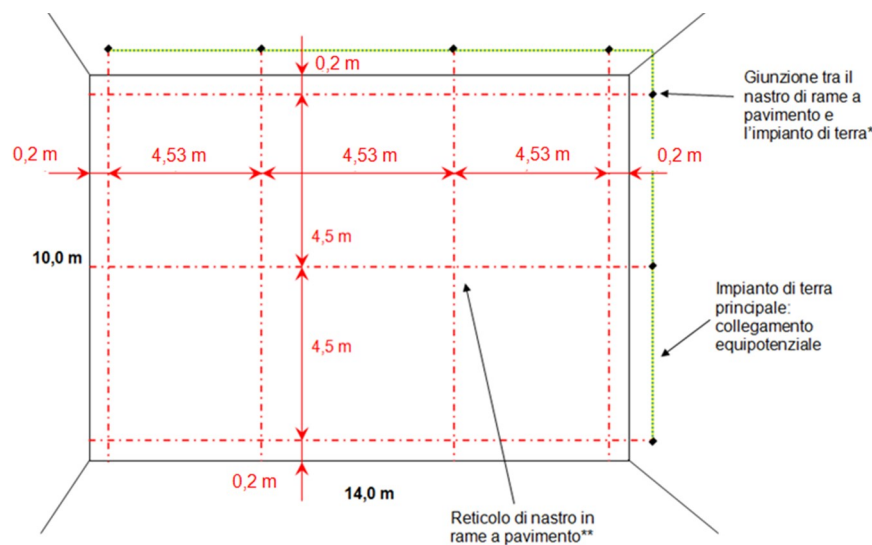


Fig. 1: example of equipotential grid in an environment with a rectangular plan (14 x 10 m).

- identify the mesh size:
 - up to 5 x 5 m: for environments with low risk of explosion;
 - up to 2 x 2 m: for environments subject to a high risk of explosion in which semi-conductors are processed;
 - up to 1 x 1 m: for environments in which explosives are processed;
- the perimeter filaments must not be more than 20 cm away from the wall-floor edge;
- dedust the previously smoothed support and apply the copper tape where required, by removing the protective silicone paper;
- avoid manipulating the adhesive excessively so as not to jeopardise its adhesion;
- press the belt fully down to the ground using a GROUTING TROWEL (rubber);
- ensure that each filament of the grid arrives uninterrupted at the corner dividing the wall and floor and is made to rise for at least 30 cm along the wall;
- make the electrician connect all the ends of the grid to the earthing system (equipotential connection).

To this aim, Nord Resine can provide the FLOOR EARTHING WITH WIRE SUPPLEMENT KIT (code 15144K3S00) for connecting the grid with the earthing system.

These accessories are equipped with a bush for earthing collars or other dissipation systems, or for verifying the heating element (see Fig. 2).

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Fig. 2: accessories for the interconnection of the dissipative mat to the earthing system (equipotential connection)

Preparing the product

- Thoroughly mix Comp. A with a mechanical low-speed professional mixer.
- Pour ESC FONDO (B) into the container of comp. A.
- Mix A+B with a mechanical low-speed professional mixer.
- Add 1 kg of ESC FONDO (A+B), 0.3 kg of 0.1–0.3 mm NATURAL QUARTZ sand.
- Homogenise and apply rapidly.

Application of the product

- Pour the ESC FONDO + QUARTZ mortar above the dissipative mat and spread it with the smooth steel trowel, applying pressure until the entire copper tape has been covered.
- Wait until the following day (at +23°C and 50% R.H.) before applying ESC FINITURA.

Consumption

type of application	minimum consumption	maximum consumption	UoM	dilution
ESC FONDO	0,50	0,50	kg/m ²	-
QUARZO NATURALE 0,1-0,3	0,15	0,15	kg/m ²	-

> Thickness = (0.55 ± 0.05) mm with a consumption of 0.65 kg/m² of the mix (A+B + sand).

Cleaning of tools

- Wet product: clean with ACETONE or nitro thinner.
- Hardened product: remove mechanically, soak for at least 24 hours in ACETONE or nitro thinner, or use paint strippers (FLUID STRIPPER or GEL STRIPPER) or a thermal gun.

Useful application tips

- Do not apply on rubber floors.
- Do not apply on wooden floors (parquet or slats).
- The product must be mixed thoroughly with suitable mechanical tools, excluding any manual system.
- Store the product in a cool location during summer and in a warm one during winter: this allows for preserving good fluidity at low temperatures and limiting the product's reactivity to high temperatures.
- Mix components A and B of in the precise ratios supplied.
- If the package is used partially, it is indispensable to weigh the single components by reading the exact "MIXING RATIO" (by weight) on the package.

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- Read the Safety Sheet carefully before using the product.

Technical data

► PRODUCT IDENTIFICATION DATA	UoM	value
Density at 23°C (A+B mix), EN ISO 2811-1	kg/L	1,251 ± 0,005
Colour (Component A)	-	Dark grey
Colour (Component B)	-	Straw yellow
Odour (Component A)	-	Characteristic
Odour (Component B)	-	Ammoniacal
► APPLICATION DATA AND FINAL PERFORMANCES	UoM	Value
Mix ratio by weight (A:B)	-	3,5 : 1,0
Pot-life (thermometric), EN ISO 9514	min	20 ± 6
Application temperature	°C	from +12 to +35
► TECHNICAL DATA IN CONFORMITY TO EN 13813	UoM	value
Bond strength, EN 13892-8	MPa	2,4 ± 0,1
Impact resistance (class), measured on specimens of concrete coated with MC (0.40) as per EN 1766, EN ISO 6272-1	N•m	10 ± 1
Fire reaction (Euroclass), EN 13501-1	-	Bfl – s1
Vertical electrical resistivity R1, EN 1081	kOhm	250 ± 100
Surface electrical resistivity R3, EN 1081	kOhm	250 ± 100

Storage of the product

- 24 months in the closed original packaging, in a dry and covered place away from direct sunlight, at a temperature between +5°C and +30°C.

Packages

VARIANT	PACKAGE	ADR	PACKAGES PER PALLET	COMPONENTS
-	(A+B) da 12 kg	YES	-	A = 9,33 kg (fustino met.) B = 2,67 kg (tanica)
-	(A+B) da 20 kg	YES	-	A = 15,55 kg (fustino met.) B = 4,45 kg (tanica)

Legenda ADR:
SI' = merce PERICOLOSA

LEGAL NOTES

Advice on how to use our products corresponds to the current state of our knowledge and does not involve the assumption of any guarantee and / or responsibility for the final result of the work. They do not refore exempt the customer from the responsibility of verifying the suitability of the products for the use and the prefixed purposes through preventive tests. The website www.nordresine.com contains the latest revision of this datasheet.

EDITION

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