ESPOC

Description and Composition

ESPOC is an **E**lectro **S**tatic **P**otential **O**ptimized **C**oating with black matte appearance. It is a electrically conductive non-metallic functional coating based on polyamide and carbon.

Application

ESPOC is a functional primer applied on ready extruded polyamide based insulbar profiles which improves the powder coating performance:

- It modifies the surface to be electrically conductive, thus enables better powder attraction in coating processes leading to a good coverage.
- It improves the adhesion of powder coatings without any further measures.
- ESPOC modified profiles retain their advantageous electrical conductivity even when dry or dried, this extends the process window for good powder coating results thus ESPOC enables indirectly reducing blistering.

ESPOC can be applied on various profile contours at the desired areas, including protrusions and undercuts. It is applied as a thin layer bonding firmly to the base profile. It can typically be applied to polyamide containing products of the insulbar portfolio.

The black matte ESPOC coating is not intended as visible surface in final application. The intended use is that ESPOC is overpainted by a regular powder coating.

Technical data

Properties	Unit	Values
Average thickness	µm	≤ 20
Typical electrical resistance*	Ω	$< 10^7$

* measured at the surface with point electrodes at 1 cm distance (longitudinal)

Processing details and recommendations

ESPOC tolerates small/superficial scratches, visible inhomogeneities and roughness. Large-scale or deep material removal of the functional coating or base profile should be avoided.

The product is generally designed with high quality level for visible surfaces designated in the individual drawing as “primary surfaces”. In special cases, it may be necessary to define parts of the coating surface with reduced optical quality level, designated as “secondary surfaces”.

Ensinger GmbH
Rudolf-Diesel-Straße 8
71154 Nufringen
Germany
Tel. +49 7032 819 0
insulbar@ensingerplastics.com
www.insulbar.com

Best powder coating results in terms of blistering can be achieved if the ESPOC profiles are processed dry (i.e. low residual moisture in the profile). The limit of acceptable residual moisture depends on many parameters:

- Type and thickness of applied powder
- Powder coating process parameters and conditions (temperature, air humidity)
- insulbar type and geometry
- Quality expectation

If the residual moisture is too high, drying of the ESPOC profiles is recommended. Proper drying does not damage the ESPOC coating. Overdying (i.e. residual moisture in the profile is too low) is not possible. The maximum drying temperature should be selected in such a way that the function and form of the base profile is not impaired. We refer also for maximum curing temperature to the Ensinger document: "Recommendations for coating insulbar® made from polyamide GF".

Due to the complexity of a powder coating process Ensinger cannot warrant optimal results for any combination of parameters, materials and geometries.

For coating solitary plastic profiles, we recommend supporting them sufficiently, if necessary over total length, when coating horizontally and using wights to keep them straight when coating vertically.

Transport, Storage and Handling

Profiles equipped with ESPOC must be stored under clean, dry and ventilated conditions. Although ESPOC coating is typically not affected by storage time, Ensinger recommends keeping the storage time short in order avoiding contamination with coating damaging substances (dust, oils, etc.).

We also refer to the document "Recommendations for the transport, storage, delivery form and handling of insulbar® made from polyamide GF".

ESPOC may release small amounts of Volatile Organic Compounds over time. Storage and transport in closed rooms without air exchange should be avoided to prevent the accumulation of VOCs. With regard to the possible aspects under health, safety and environment and instructions for safe handling, reference is made to the Ensinger "Product Handling Information Sheet (PHIS) for insulbar® produced out of TECATHERM modified with ESPOC" and applicable national regulations.

Recycling

ESPOC is designed to exhibit a high material compatibility with polyamide based profiles and thus does not interfere with the material recycling of uncoated profiles. Foreign material classes, e.g. metals or metallization agents (Aluminum, Copper, Nickel etc.) are not used.

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