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Product Data Sheet

Electrodag® 437

Copper based EMI shielding coating

Description:

Electrodag 437 is one of a series of Electrodag EMC shielding coatings designed to provide electromagnetic compatibility (EMC) on cabinetry used for electronic equipment. It is an extremely conductive copper coating providing excellent shielding against radiated electro-magnetic interference (EMI) and protection against electrostatic discharge (ESD).

Electrodag 437 combines increased conductivity with improved economy; it offers ease of application and, contrary to conventional copper coatings, excellent stability to difficult environmental conditions.

Typical Applications:

- Plastic cabinetry of computers, printers, keyboards, visual display units, disc drive units, teleprinters, telephone equipment, electronic typewriters, copiers, consumer electronics and industrial, scientific and medical equipment.
- Reflective coating on parabolic antennas.

Advantages:

- Higher conductivity per micron dry coating
- High covering power
- Ease of dilution and dispersion
- Air drying system; no cure required
- Compatible with all commonly used plastic
- Stable electrical properties after heat cycling and humidity test (70°C/95% RH/14 days)
- Burnish resistant (electrical resistance is minimally affected by wear)
- Over-coatable

Typical Properties:
(of wet product)

Pigment	:	copper
Binder	:	thermoplastic resin
Solids content	:	63.5 ± 1.0%
Viscosity (Brookfield 20ºC, 20 rpm)	:	3000 - 6000 mPa.s
Flashpoint	:	23°C
Density	:	ca. 1650 kg/m^3
Theoretical coverage	:	23 m^2/kg at 10 µm coating thickness
Shelf Life	:	12 months from date of qualification under original seal

Method of Use:

Detailed application methods are available in separate Application Sheet.

Surface preparation
Surface should be clean and dry.

Mixing and dilution
Thoroughly mix Electrodag 437 (e.g. on a paint shaker) before dilution. Normally the product is diluted with MEK.

Solvent sensitive substrates:
Some times, especially with rather complicated parts with many ribs on it, moulded from solvent sensitive plastics (ABS, Polystyrene and Polycarbonate) are very prone to stress cracking. In such cases replacing about 15% of the MEK by iso-Butanol or Di-Aceton Alcohol (DAA) provides a suitable alternative.

Recommended dilution ratios being:
by volume: 5 parts of product to 4 parts of solvent
by weight: 5 parts of product to 2 parts of solvent

Application
Electrodag 437 should be spray applied using conventional propeller agitated pressure pot spray systems. Small prototype runs may be sprayed with well-mixed product, using suction cup spray equipment.

Recommended coating thickness
A nominal 50 to 75 µm dry coating thickness is recommended for good shielding performance. However, a thinner coating may be acceptable, depending on the shielding requirements of the device being protected. Avoid dry spray for maximum adhesion and conductivity.

Drying
Electrodag 437 dries to touch in about 5 minutes; to handle in approx. 30 minutes, depending on ambient temperature and coating thickness. The coating has obtained full coating properties after airdrying overnight.

Cleaning
For high volume production where masks are used to prevent coating certain areas, the masks can be cleaned with ester (butylacetate, ethylacetate) or ketone (MIBK, MEK) solvents. Spraying and mixing equipment may be cleaned with the same solvents.

Typical Properties
(on Lexan panels, airdried/overnight)

Sheet resistance	:	< 0.5 Ohm/square at 25 µm coating thickness
Attenuation (per ASTM ES 7-83)	:	50 - 70 dB at 50 µm
Pencil hardness	:	> 9H
Service temperature range	:	-40°C to 95°C
Adhesion (ASTM 3359 B)	:	5B (excellent)

Storage:

Store the product at temperatures between 5 and 30°C.

Health & Safety:

See separate Material Safety Data Sheet.

Note:

The data contained on this sheet represents typical properties and is not to be used as a basis for preparation of specifications.