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## Electrodag<sup>®</sup> 440 AS

Nickel based EMI shielding coating

**Description:**

Electrodag 440 AS is one of a series of Electrodag EMC coatings designed to provide electromagnetic compatibility (EMC) on cabinetry used for electronic equipment. It is a highly conductive nickel coating providing excellent shielding against radiated electromagnetic interference (EMI) and protection against electrostatic discharge (ESD).

Electrodag 440 AS combines increased conductivity with improved economy; it offers improved ease of application and excellent stability to difficult environmental conditions such as high humidity or heat.

**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 kilo of wet product
- Higher conductivity per micron dry coating
- High covering power
- Improved stability against sedimentation
- Ease of dilution and dispersion
- No risk of settling in supply line and spray equipment
- Air drying system: no cure required
- Compatible with all commonly used plastic
- Over-coatable

**Typical Properties:  
(of wet product)**

Pigment	:	nickel
Binder	:	thermoplastic resin
Solids content	:	69 - 71%
Viscosity (Brookfield 20°C, 20 rpm)	:	4500 - 7000 mPa.s
Flashpoint	:	17°C
Density	:	ca. 2025 kg/m <sup>3</sup>
Theoretical Coverage	:	ca. 17 m <sup>2</sup> /kg at 10 µm coating thickness
Diluent	:	MEK (methyl ethyl ketone)
Shelf Life	:	12 months from date of qualification under original seal

<b>Method of Use:</b>	<p><i>Detailed application methods are available in separate Application Sheet.</i></p> <p><u>Surface preparation</u> Surface should be clean and dry.</p> <p><u>Mixing and dilution</u> Thoroughly mix Electrodag 440 AS (e.g. on a paint shaker) before dilution. Normally the product can be diluted with MEK.</p> <p><u>Solvent sensitive substrates:</u> 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.</p> <p><u>Recommended dilution ratios:</u> by volume: 1 part of product to 1 part of solvent by weight: 5 parts of product to 2 parts of solvent</p>	
<b>Method of Use (cont.):</b>	<p><u>Application</u> Electrodag 440 AS 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.</p> <p><u>Recommended coating thickness:</u> A nominal 50 to 75 µm 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.</p> <p><u>Drying</u> Electrodag 440 AS dries to touch in about 5 minutes; to handle in approx. 20 minutes, depending on ambient temperature, coating thickness and diluent. Best coating properties will be achieved after 4 - 16 hours air drying (depending on coating thickness and ambient temperatures). Forced drying at 60 – 70°C for 20 - 30 minutes is possible too.</p> <p><u>Cleaning</u> 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.</p>	
<b>Typical Properties (product sprayed on Lexan, coating airdried/overnight)</b>	Sheet resistance	: < 0.50 Ohm/square at 25 µm coating thickness
	Adhesion (ASTM - 3359B)	: 5B (excellent)
	Attenuation (per ASTM ES 7-83)	: 50 - 70 dB, at 50 µm
	Pencil hardness	: 9 H
	Service temperature range	: - 40°C to 95°C
<b>Storage:</b>	Store the product at temperatures between 5 and 30°C.	
<b>Health &amp; Safety:</b>	See separate Material Safety Data Sheet	
<b>Note:</b>	The data contained on this sheet represents typical properties and is not to be used as a basis for preparation of specifications.	

**Note**

Information presented in this sheet is considered reliable, but conditions and methods of use, which are beyond our control, may modify results. Before adopting our products for commercial use, the user should confirm their stability. In no case should recommendations or suggestions for the use of our products be understood to sanction violation of any patent.