

TECHNICAL DATA SHEET FOR

ECP 502

NICKEL-ACRYLIC EMI SHIELDING PAINT

DESCRIPTION

Single component Nickel/Acrylic conductive coating to provide effective EMI/RFI Shielding on plastic housings used in the electronics and computer industries.

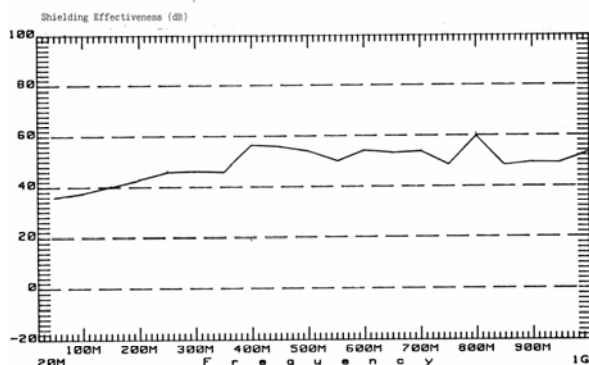
PHYSICAL PROPERTIES

Surface Resistivity at 50 micron (2 thou) ASTM D257	0.9 ohm/square or less
Colour	Dark Grey
Flash Point (Abel closed cup - method IP 33/59)	25 deg C
Recommended Dry Film Thickness ASTM D 4138-82)	50 micron (2 thou)
Specific Gravity	1.69 g/cc
Coverage per litre at 50 micron	7-10 square metres
Drying time: Touch	15 minutes
Full	12 hours
Adhesion (BS 3900 E6)	Excellent
Pencil Hardness (ASTM D3363-74)	H
Shelf Life	12 months

AVAILABILITY

ECP 502 is available in 5 and 20 litre cans or alternatively as an aerosol, **ECP 552**.

SHIELDING EFFECTIVENESS



Shielding Effectiveness
(dB) of ECP 502

Test data supplied by REL Ltd,
Cheltenham. Report No. 1013

Continued

METHOD OF USE

Surface Preparation: All contaminants including mould release, grease and dirt must be removed. Mask areas that do not require coating. A suitable primer may be necessary on certain substrates such as Polyethylene and Polypropylene etc.

Mixing and Application: Care must be taken to mix in all the solids.

Spray Coating:- Dilute 1:1 with suitable thinners (Xylene, MEK). Upon dilution, **ECP 502** may settle out and regular agitation is recommended during spray application. A conventional gravity feed spray gun can be used or, alternatively, a pressure pot with agitator. A gun Pressure of 40 psi is recommended. Two passes are normally required to give the optimum thickness and surface resistivity values.

Brush Coating:- Brush coat from the can.

PRECAUTIONS

Highly Flammable - Keep away from sources of ignition - No Smoking (S16). Keep away from heat, sparks and open flames. Keep all containers closed when not in use.

Use Under Well Ventilated Conditions - Do not breath vapour (S23). Harmful by inhalation (R20). In case of insufficient ventilation - wear suitable respiratory equipment (S38), such devices must be used in accordance with the manufacturer's instructions. For excessive vapour inhalation, remove to fresh air and summon medical attention.

Avoid Contact With Skin And Eyes (S24/25) - In case of skin contact, wash with soap and water, dry and apply work cream. Eye contact - flush with water for at least 15 minutes and seek medical attention. If accidentally swallowed, summon medical attention.

If you would like further information or assistance, please contact Electro Conductive Products at TBA.

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ECP 505 SILVER PLATED COPPER EMI/RFI SHIELDING COATING

DESCRIPTION

- ECP 505 Is supplied ready for use, it is designed to give low resistance, in thin film thickness, displaying excellent adhesion to most plastics it is ideal for electronic equipment housing. It exhibits excellent long term shielding and grounding properties while providing an aesthetically pleasing appearance.

PHYSICAL PROPERTIES

- Surface resistance at 25 micron
thou) ASTM D257 0.6 ohm/square or less
- Pigment Silver plated copper
- Viscosity 16 - 18 sec. (zahn cup 2)
- Flash Point - 5°C
- Specific Gravity 1.05
- Typical coverage 4.5 m²/kg at 25 microns

TYPICAL PROPERTIES

- Sheet resistance <0.050 Ω/square at 25 μm
- Attenuation > 75 dB at 50 μm
- Maximum service temperature 95°C

DIRECTIONS FOR USE

Mixing and dilution

- ECP 505 is easily mixed by stirring care must be taken to ensure all solids are evenly dispersed. Dilution is not usually necessary. Product can be thinned with M.E.K. if necessary.

Application method

- Conventional propeller agitated pressure pot systems can be used for production. Small sample runs can be sprayed using suction cup spray equipment providing product has been well mixed and is not given time to settle in use. Highest efficiency has been achieved using high volume, low pressure (HVLP) spray guns.

- A nominal 25-50 µm coating thickness is recommended for good shielding properties. A thinner coat can be used depending upon the shielding requirements of the device being protected. Avoid dry spray for maximum adhesion and conductivity.

Drying

- ECP 505 is touch dry in approx. 5 minutes and to handle in about 10 minutes, depending on ambient temperature and film thickness. Best results will be seen 4 to 16 hour's air drying (dependant upon film thickness and ambient temperature). It can be force dried for 20 minutes at 60°C after a short flash off time.

Quality Control

- Measure the surface resistance after coating is fully dried. Digital ohmmeter measurements using the same type of fixed test probe rigs avoids confusion and is highly recommended, although corner to corner readings are also frequently used.

Cleaning

- Masks can be easily cleaned with solvent. Overspray can be removed from plastics with 40/60% acetone/IPA wipe.

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ECP 508 SILVER EMI/RFI SHIELDING COATING

GENERAL

- ECP 508 Is one of a series of coatings designed to provide Electro-Magnetic Compatibility (EMC) it has been specifically designed to give:
 - Increased coverage
 - superior cohesion

while maintaining a very high conductivity. Thus it is a very economic means of achieving excellent shielding against radiated electromagnetic interference (EMI).

It maintains its low resistance even after exposure to heat, cold, humidity and salt spray. It is easily applied by brush or spray and is compatible with most plastics commonly used for electronic equipment enclosures.

ECP 508 is an air drying system and normally requires no primer or top coat.

PHYSICAL PROPERTIES

- | | |
|---------------------------------------|---------------------------------------|
| • Pigment | Silver |
| • Viscosity (Brookfield 20°C, 20 rpm) | ca. 550 mPa.s |
| • Flash Point | 14°C |
| • Specific Gravity | 1.63 |
| • Typical coverage | 12.6 m ² /kg at 10 microns |

TYPICAL PROPERTIES

- | | |
|-------------------------------|--------------------------|
| • Sheet resistance | <0.025 Ω/square at 25 μm |
| • Attenuation | > 60 dB at 25 μm |
| • Maximum service temperature | 105°C |

DIRECTIONS FOR USE

Surface preparation

- Make sure substrate is clean (free from dirt and grease) and dry.

Mixing and dilution

- Thoroughly homogenize ECP 508 before use. Check to make sure all solids at the bottom of the container are mixed.
Use neat for brush application. For spray application dilute the product with ECP 508 Thinners 2:1 by weight product to diluent.

Application.

- A conventional paddle-agitated pressure tank system should be used when applying ECP 508 by spray. It is recommended to maintain a spray pressure of 2 to 2.5 bar and to use a spray gun with a nozzle diameter between 1-1.5 mm. Small prototype runs may be sprayed using suction cup spray equipment or gravity feed.
A 10 - 15 micron coating is recommended for good EMI shielding performance. Avoid “dry spraying”, for maximum adhesion and conductivity.

Drying

- ECP 508 is touch dry in approx. 10 minutes and to handle in a further 10 minutes depending on ambient temperature and film thickness. Best results will be seen 4 to 8 hour's air drying (dependant upon film thickness and ambient temperature). It can be force dried for 30 minutes at 70°C after a short flash off time, force drying clearly improves conductivity.

Quality Control

- Measure the surface resistance after coating is fully dried. Digital ohmmeter measurements using the same type of fixed test probe rigs avoids confusion and is highly recommended, although corner to corner readings are also frequently used.

Cleaning

- Masks can be easily cleaned with esters or ketone solvents. Overspray can be removed from plastics with 40/60% acetone/IPA wipe.

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