cenvar ®
enamels & varnishes

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Enamelled Wires   •   Insulating Varnishes & Resins   •   Wire Enamels   •   Encapsulating & Potting Compounds

Conformal Coating Overview

Conformal coating is a thin polymeric film that adheres to circuit board components, providing a protective layer against environmental hazards and corrosion. It acts as an insulating and protective barrier, extending the life and reliability of PCBs and electronic assemblies.

Advantages of Conformal Coatings for PCBs and Electronic Components

- **Protection Against Elements**: Guards against dust, moisture, solvent vapours, fluids, abrasion, chemicals, and mold growth.
- **Enhanced Insulation**: Allows reduced conductor spacing on PCBs due to its insulating properties.
- **Strengthens Solder Joints**: Improves fatigue resistance.
- **Prevents Electrical Failures**: Reduces the risk of electrical failures and current leakages due to contaminants.
- **Corrosion Resistance**: Inhibits corrosion and protects against arcing and corona discharge.
- **Mechanical Support**: Provides vibration resistance, reducing environmental stress on PCB assemblies.
- **Simplified Enclosures**: May eliminate the need for complex enclosures.
- **Maintains Performance**: Prevents degradation from environmental hazards with minimal impact on component weight.

Coating Film Thickness

- Typical film thickness ranges from **25 to 75 microns**.
- Additional coats can be applied for increased protection.

Application Methods

1. Brush
2. Aerosol
3. Spray gun
4. Manual dipping
5. Automated dip coating
6. Automated spray coating

cenvarEPX B44 is compatible with all these methods.

Curing Methods

Curing depends on the type of conformal coating used:

1. **Air Drying** / Solvent Evaporation
2. **Heat Cure**
3. **UV Cure**

cenvarEPX B44 cures via air drying.

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Coverage Area Calculation:

The formula for calculating theoretical coverage is:

Theoretical coverage = (% of volume solids × 10) / Dry Film Thickness (DFT)

For example, for **cenvarEPX B44**, with 35% volume solids and a 25-micron DFT per coat:

1. Theoretical coverage at 25 microns = (35 × 10) / 25 = **14 sq. meters per litre**
2. Theoretical coverage at 40 microns = (35 × 10) / 40 = **8.75 sq. meters per litre**