



Conformal Coating Guideform Specification

Conformal coating is specially formulated to protect PCBs and related equipment from the environment. This coating improves and extends the working life of the PCB and ensures security and reliability. The coating conforms to the shape of the board and its components, creating a protective layer that is both lightweight and flexible.

Conformal coating material must meet the following specifications:

Mil-1-46058C Type UR requirements.

IPC-CC-830, Qualification and Performance of Electrical Insulating Compounds for Printed Board Assemblies.

UL 746E, Polymeric Materials—Industrial Laminates, Filament Wound Tubing, Vulcanized Fiber, and Materials Used in Printed Wiring Boards.

UL 94V-1 Flame Resistance Rating.

IEC 60664-3, Insulation Coordination for Equipment Within Low-Voltage Systems, Part 3: Use of Coatings to Achieve Insulation Coordination of Printed Board Assemblies.

Conformal coating material must be applied in an even layer across the PCB providing a thickness no more than 4 mils and no less than 1 mil. Coating shall be applied to all areas of the PCB with the exception of grounding connections, cable connections, and areas of the PCB not used for electrical tracing or tracing insulated by PCB solder resist. Coating application shall be applied by spray application, not by dipping the PCB in the coating material.

Products with conformal coating must be tested and approved to the following specifications for mixed flowing gas, hygroscopic dust, and damp heat:

Telcordia Technologies GR-63-CORE, Issue 2, April 2002, Network Equipment-Building System (NEBS) Requirements: physical protection (preferred—test duration extended).

EIA 364-65A Mixed Flowing Gas TP 65A Class IIIA (preferred—test duration extended).

ANSI NCSL Z540-1 calibration laboratories and measuring and test equipment general requirements.

IEC 60068-2-30-1980, 1985, Basic Environmental Testing Procedures, Part 2: Tests—Test Db and guidance: damp heat, cyclic (12 + 12-hour cycle), severity level 25° to 55°C, 6 cycles, relative humidity 95 percent.

Mixed flowing gas includes contaminants chlorine (CL₂), hydrogen sulfide (H₂S), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂).

Hygroscopic dust includes water-soluble salts, sulfate, nitrites, volatile organic compounds, SO₂, H₂S, ammonia (NH₃), nitrous oxide (NO), nitrous dioxide (NO₂), nitrous acid (HNO₂), ozone (O₃), and gaseous chlorine.

Testing shall be performed by an approved testing facility and testing documentation shall be made available.

