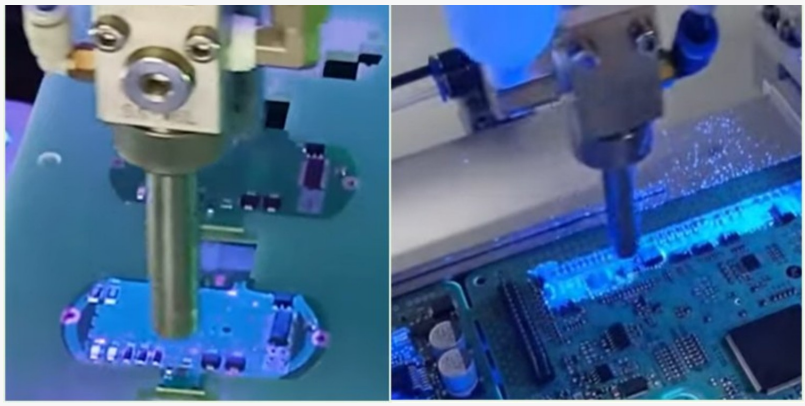
New Solvent-Free, Waterborne Conformal Coating Provides Superior Corrosion Protection for Printed Circuit Boards

A novel waterborne conformal coating to provide 100 times barrier against moisture and corrosive gases penetration than traditional solvent-based coating



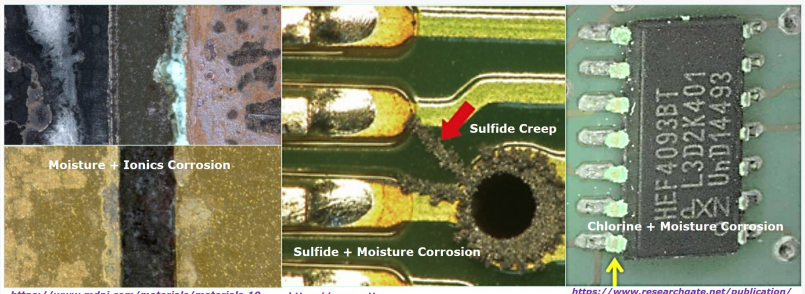
MOISTSEAL™ CC7650 is a solvent-free conformal coating that can be applied with traditional spray, dip, and brush coating in a common electronic manufacturing environment without excessive ventilation provision. It can also be applied in the field for fiel

PRINCETON JUNCTION, NJ, UNITED STATES, March 12, 2025 /EINPresswire.com/ -- In the ever-evolving world of technology, high-performance printed circuit boards (PCBs) play a crucial role in powering our devices. However, these more advanced electronic components also have conductor traces with much closer proximity and are more susceptible to corrosion, which can lead to malfunction and failure. To combat this issue, AI Technology, Inc. has developed a revolutionary water-borne, solvent-free MOISTSEAL™ CC7650 conformal coating that provides superior protection against corrosion for PCBs. In comparison to traditional solvent-borne conformal coatings such as acrylic, polyurethane, and silicone molecular structure, the 50-micron thickness of MOISTSEAL™ CC7650 conformal coating provides 100 times more barrier to the penetration of moisture and corrosive gases.

This new coating is a game-changer for printed circuit board protection in the electronics industry. It offers a more environmentally friendly and cost-effective solution. The water-borne formula eliminates the need for harsh chemicals and solvents, making it safer for the environment and workers. Additionally, it can be easily applied using standard spray equipment, reducing production time and costs.

Corrosions in exposed base metal traces such as copper and nickel-plated contacts, solder interconnections, and plated through vias happen when there is condensed moisture laden with dissolved salts and ionic impurities, corrosive gases such as H2S, CO2, SO2, NO, Chlorine, etc.

The function of the conformal coating for PCB board protection is to form a barrier to slow down and block these corrosive elements from penetrating and retaining at the board metal traces and coating interfaces.



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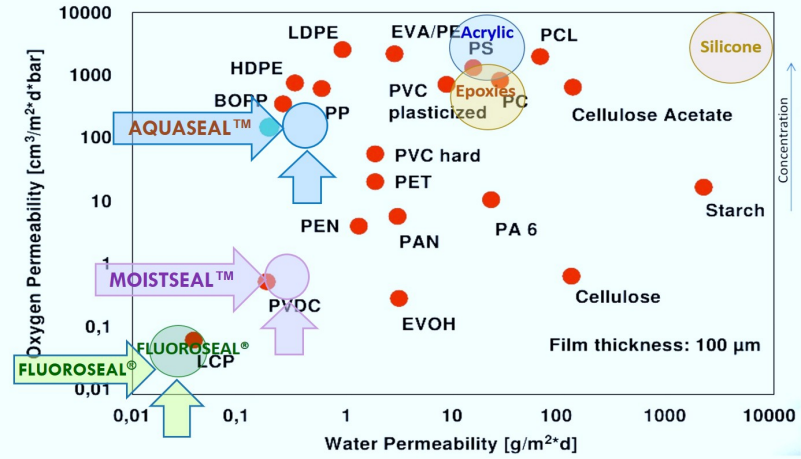
The effectiveness in protecting base metal traces from corrosion of a conformal coating depends on the coating in blocking or slowing down the penetration of water molecules and corrosive gases from penetrating through and getting to the metal traces. The faster or more permeable the conformal coating for the moisture, moisture with dissolved salts, corrosive gases, and moisture-water absorption to forming corrosive electrolytes at the coating and metal traces interfaces, the faster the corrosion of the PCB being protected.

> This new MOISTSEAL™ CC7650 conformal coating is a game-changer for PCB protection. It offers a more environmentally friendly and cost-effective solution than traditional solvent-based coatings."
>
> *Albert Chung, President of AI Technology, Inc.*

The ability of the conformal coating to slow or block the penetration of moisture and corrosive gases is determined primarily by its molecular structures. For example, PET is used for bottling soft carbonated drinks because it is a relatively good barrier to carbon dioxide escaping from bottled drinks. PET plastic is used based on the balance of acceptable gas barrier, low health impact, and reasonable cost. PE and PP are not selected primarily because of the slightly higher permeability of gases such as oxygen and, thus, carbon dioxide. MOISTSEAL™ CC7650 conformal coating is made of a novel polymer structure proven to have more than 100 times higher moisture and corrosive gases barrier than traditional acrylic conformal coatings. It is engineered to incorporate dark UV inspection and antifungal function in compliance with the IPC CC830-S conformal coating standard.

Besides providing an outstanding barrier to moisture and moisture laden with dissolved salt ions, MOISTSEAL™ CC7650 is resistant to salt-spray and temporary immersion in water. When repeat water splashing and long-term submersion in water are expected, a top coating of AQUABLOC™ CC7130-PR or FLUOROSEAL® CC-SC7150 made by AI Technology is recommended.

MOISTSEAL™ CC7650 approaches that of the PVDF polymer-based FLUOROSEAL® Conformal coating pioneered by AI Technology for the highest level of printed circuit board corrosion protection, including the most aggressive H2S gas-related dendritic corrosion. It dramatically lowered the costs with solvent-free ease of coating process. It is an answer to the drive for solutions that are both friendly to the environment and the works.



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MOISTSEAL™ CC7650 has a more than 100 times higher moisture and corrosive gases barrier than traditional acrylic conformal coatings. Its solvent-free, waterborne, and fast drying solution provides the ease of field applicability and more manufacturability

For electronic devices intended for commercial use and protected with MOISTSEAL™ CC7650 conformal coating but later to be used in corrosive industrial settings, a FLUOROSEAL® conformal coating can be applied as a top coating to provide the needed extra protection. AIT PVDF FLUOROSEAL® CC-SC7150 conformal coating is compatible as a top coating for MOISTSEAL™ CC7650 with outstanding 5B cross-hatch adhesion on the printed circuit board.

About AI Technology, Inc. (AIT)
Founded in 1981, AI Technology, Inc. (AIT) is headquartered in Princeton, NJ, with additional facilities in Princeton Junction, NJ. AIT pioneered the use of FLUOROSEAL® PVDF-based field applicable conformal coating for printed circuit board corrosion protection for the most aggressive chemical and industrial operating environments. MOISTSEAL™ complements the conformal coating protection solutions for the wider consumer electronics application. The conformal coatings and other AIT film and paste microelectronic adhesives and coatings are available from manufacturing sites in New Jersey and California in the USA and Shenzhen in China.

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