Curtiss-Wright Optimizes Parylene Assets

The integration in 2017 of Para Tech Coating with the already well-established assets of Curtiss-Wright Corporation has resulted in strong Parylene coating technology leadership, both domestically and internationally. Our new, expanded organization benefits from decades of experience, broad application exposure, and extensive equipment manufacturing resources, and now serves customers from multiple individual Parylene coating service centers worldwide.

Curtiss-Wright Parylene Services offers alternative deposition technologies that allow our coating specialists to fine-tune the Parylene process to meet very specific application demands. Production variables include the means used to control deposition - either by precise chamber pressure management, or by stepped time and temperature control. Additionally, multiple vacuum chamber configuration and monomer flow designs are available to our production engineers for process optimization. This selection of vacuum deposition options is unmatched in the Parylene coating industry.

These new Parylene resources complement Curtiss-Wright Corporation’s long-established position as a global innovative company delivering highly engineered, critical function products and services to the commercial, industrial, defense and energy markets. Building on the heritage of Glenn Curtiss and the Wright brothers, the company has a long tradition of delivering reliable solutions through trusted customer relationships.

Work-in-Process Management - a Matter of Constant Refinement

Work-in-process (WIP) management at Para Tech Coating is governed by a series of ideals the company pursues mutually with every customer. These are: having an open agenda, promising consistent attention to detail, being open to compromise, seeking to mutually solve problems, agreeing to promptly right wrongs, constantly pursuing improvement, keeping promises, and delivering results.

Operating under this mantle of business principles, Para Tech works to plan, implement, monitor and refine each step in the Parylene coating service process. Since the vacuum deposition sequence is fixed and cannot be shortened, WIP improvements must be found elsewhere in the manufacturing sequence. Effective WIP management means challenging every step, renewing, revising, and seeking both time and cost reductions. Para Tech is currently pursuing a goal of 6% improvement in what is already one of the shortest turnaround times in the industry. This has been accomplished without compromising quality.

One example of a current WIP improvement element at Para Tech Coating is the implementation of a new robotic auto-masker, which is expected to speed pre-coating preparation while at the same time enhancing pre-coat masking accuracy and consistency. This new automation resource has just gone into operation at Para Tech’s Aliso Viejo, California, coating center, and further details will be provided as they are available.

Anaheim Convention Center
February 6-8, 2018 - Anaheim, CA
Stop by the Curtiss-Wright Parylene Services Booth 741

parylene.com
Parylene Suits Nano-Coating Requirements

Parylene is a fully compliant Type UT (ultra-thin) coating that meets the unique deposition parameters specified in IPC-CC-830 testing guidelines, including an applied thickness less than 12 micrometers. Conventional encapsulating materials such as silicones, acrylics and epoxies are ill suited to nano-coating coating applications due to multiple physical limitations that include high mass, excessive thickness, and potentially harmful cure forces.

As a vapor-deposited film that is formed controllably at the molecular level, Parylene can be applied to very small components in extremely thin layers to deliver protection that includes excellent adhesion, chemical and moisture isolation, dielectric properties, dependable crevice penetration, mechanical flexibility and surface lubricity. These important coating benefits accrue without mechanical stress or loading, and without adding harmful substances.

The trend to miniaturization across electronic and electromechanical applications continues, and Parylene and the vacuum deposition process support that trend with uniquely effective conformal encapsulation. Contact us to discuss your specific nano-coating requirements.

Adhesion Promotion for Effective Parylene Coating

Parylene is unique among conformal coatings as to its suitability for coating surfaces and substrates with a widely divergent range of mechanical properties. This film is more effective than liquid coatings for use with metal, ceramic, elastomer, plastic, glass and paper. In some cases, an interfacial bonding agent is used to form a bonding layer between the film and the underlying surface.

Most commonly, inorganic Organo-Silane (SiH4) is applied to cleaned substrates as a coupling agent, forming what might be termed an inter-penetrating polymer network or chemical link between coating and substrate.

As a part of Curtiss-Wright Surface Technologies, Para Tech Coating is an affiliate of IMR Test Labs, a leading provider of mechanical and metallurgical testing services for the aerospace, power generation and medical markets. IMR’s complete range of testing capabilities includes fatigue testing, metallurgical analysis, chemical analysis, mechanical testing, failure analysis and training.

IMR is studying the Organo-Silane adhesion promotion interface under laboratory conditions to better understand the chemical and mechanical performance of this bonding agent, with the objective of further optimizing Parylene adhesion across the full range of coating applications. We will provide an update on their initial findings in the future.

Parylene Solutions for Medical Manufacturers

Medical components and devices face particular environmental threats in use related to corrosive body fluids, as well as potential exposure to electrolytes, proteins, lipids and enzymes. Parylene resists such hazards, and since it is both biostable and biocompatible, as well as effective as a very thin film, it can be used to isolate and protect surgical materials and implanted devices to far better advantage than any other coating material or process.

In the new Curtiss-Wright Parylene Services organization, Para Tech combines its established process management resources with the organization’s extensive medical coating supply chain expertise to meet the critical demands of applications such as prosthetic hardware, catheters, guide wires, implanted devices and surgical components. These resources have been combined at the company’s Aliso Viejo, California location, with engineering and production at a single location to best serve medical manufacturers.

The Curtiss-Wright Parylene Services organization is optimizing best practices based on the wide experience of its combined units, with the goal of consolidation, refinement and globalization in the interest of our customers.

For locations and contact information, visit parylene.com