Curtiss-Wright Acquires Para Tech Coating

Para Tech Coating became part of the Curtiss-Wright (NYSE: CW) Surface Technologies Division effective February 8, 2017, making Curtiss-Wright the largest U.S. owned Parylene coating service provider. We now offer expanded coating services from additional locations in the U.S. and Europe. Our new organization can provide broader coating application coverage and increased production capabilities because of expanded equipment options.

In addition, Curtiss-Wright Parylene Services is strengthening its enterprise resource program with enhanced sales and marketing focus, resource planning, and refined management processes at every step in the coating services process from order entry through to product delivery.

“We are enthusiastic about the new resources and affiliations that this acquisition entails and look forward to continued development of our leading service and technology capabilities,” said Bill Gleason, senior business unit manager, Curtiss-Wright Parylene Services.

Curtiss-Wright Corporation is a global innovative company that delivers products and services to commercial, industrial, defense and energy markets. The Surface Technologies Division is a global network of 74 facilities and on-site field teams, specializing in a wide range of sophisticated surface treatments and solid film lubricant coatings. For more information on Curtiss-Wright Surface Technologies, visit www.cwst.com.

Parylene vs. PTFE for Lubricious Medical Coating Applications

Both Parylene and Polytetrafluoroethylene (PTFE) have clear advantages over traditional liquid coatings for medical components that require coating lubricity. While PTFE has a lower static coefficient of friction than Parylene (0.04 versus 0.25 to 0.33), Parylene coating offers superior performance in certain applications.

For example, PTFE, with its R58 hardness rating, may be subject to chipping and flaking under some conditions, which can result in poor adhesion, delamination and particulate release. At a hardness of R80, Parylene delivers superior yield in many low-friction applications without chipping or flaking or the accompanying threat of particulate contamination.

Parylene is also superior in sterilization resistance, tolerating virtually any method, in contrast to PTFE, which is vulnerable to Gamma and autoclave processes. Chemically inert Parylene is free from both toxic and non-toxic byproducts, unlike PTFE which releases HF and CO₂ during its manufacture, and hydrogen chloride and other toxins during application.

Parylene entails no catalysts, plasticizers or solvent residues, and thus no substances can be leached from Parylene regardless of operating conditions. Finally, Parylene is applied at room temperature without threat to heat sensitive medical substrates such as nickel titanium. It does not pool, withdraw from edges, bridge between surfaces or suffer from meniscus, and pinhole-free coating buildup is uniform across surfaces. Vacuum deposited Parylene film thickness is controllable across the range of 0.5 to 50 microns.

The best choice of a hydrophobic, lubricious medical coating depends on performance specifications, application specifics and production conditions, and these two coatings each have particular advantages and limitations. In cases where either of these materials might be used, it may be useful to conduct comparative application-specific performance tests rather than relying solely on material specifications.

Parylene - an Effective Nano Coating Alternative

The IPC has recently directed considerable attention to the need for coatings suitable to the unique needs of nanotechnology. Ultra thin and absolutely conformal Parylene film is an effective option for this application. Look for more details in an upcoming newsletter.
Quality Certification Update

Efforts to meet the latest quality standards are an ongoing process at Curtiss-Wright Parylene Services. According to quality manager Patricia Langraphi at the Aliso Viejo, California, coating center, the company continues to focus attention on each step in the Parylene process in order to deliver consistent high quality services.

She explains that a number of the Parylene Services sites recently completed recertification for ISO 9001:2000 and AS9100. The company is also certified to ISO 13485 for design and manufacturing of medical devices at two coating sites, with a third location to be added by year-end. Additionally, we maintain the required drug and alcohol test regimen to satisfy the FAA’s 14 CFR/CFR 49 anti-drug and alcohol misuse prevention program for product rework.

Parylene Services is currently implementing even more robust EHS and EMS programs in accordance with Curtiss-Wright’s corporate commitment to performance standards. Each of the company’s coating centers will be upgraded to mandated ISO 9001:2015 and AS9100 Revision D standards during 2018.

Parylene Protects Sensors

The use of delicate electronic sensors has expanded rapidly in recent years along with increased automation in many areas, such as automobiles, drones, commercial and military electronics and consumer systems. Sensors must operate precisely and consistently in difficult environments, and thus require effective protection that does not sacrifice performance consistency or accuracy.

Because of its unique low mass and truly conformal nature, Parylene coating is uniquely suited to protection of sensors from contaminants, moisture, chemicals, external voltages, temperature excursion and other threats compared to viscous liquid coatings.

Since the coating film is deposited on sensor elements from a vapor - at room temperature - it imposes no cure forces. With very low, pinhole-free mass, Parylene imposes no stress forces under use conditions, even with extreme temperature excursions.

At only 500 angstroms to 75 microns, a Parylene film is only a small fraction of the thickness of a liquid-based coating and yet offers superior adhesion, dielectric strength, and chemical and moisture resistance - without adverse mechanical loading.

The choice of available Parylene dimer forms, such as types N and C, enables designers to fine-tune the coating’s properties to the specialized needs of an application, including dielectric strength and dielectric constant values, dissipation factor, moisture and gas impermeability, and temperature limits and UV stability. Curtiss-Wright Parylene Services has extensive experience in satisfying highly individualized coating requirements, and is ready to assist with your application, including protection of sophisticated electronic sensors.

Expanded Coating Capabilities

With the new corporate affiliation, Curtiss-Wright Parylene Services offers an expanded range of process options, allowing our distributed coating centers to fine-tune production arrangements and achieve the most productive and cost-effective deposition method for each customer and each coating task.

Our facilities now feature a greater selection of deposition chamber configurations and sizes to create optimized coating solutions for electronics, medical and industrial applications. These chamber options include vertical and horizontal formats in a range of sizes for masked and fixture parts, for total coating of non-masked and non-fixture items, and for tumble coating discrete components.

Contact Curtiss-Wright Parylene Services for assistance with the best deposition approach for your applications.