

Improving Factory Throughput with Advanced, Automated Lubricant Deposition

When medical device manufacturers design precision mechanical devices, friction between moving parts can be difficult to manage. Engineers use medical grade lubricants — oils, greases or dry powders — to smooth the movement of parts that slide, shear, twist or pivot. For example, two pieces of titanium alloy rubbing together have a sliding coefficient of friction (CF) of 0.30 while polystyrene moving over steel has a CF of 0.50. High CFs make it difficult to design devices requiring delicate movements.¹



Operating the system is simple and automated, freeing technicians to perform other tasks.

But while the usefulness of lubricants is undisputed, applying lubricants onto parts can be tricky. Lubricants can be messy; they can “migrate” to other surfaces, they can degrade protective coatings and paints; and they can slow production.

MicroCare offers Duraglide® dry lubricants for this environment (see: *Advances in Critical Cleaning*, April 15, 2015). These lubricants reduce the coefficient of friction to as little as 0.06,

which is almost as slippery as ice. This greatly improves device performance. Many medical devices would not be commercially viable without a dry lubricant.

Baron-Blakeslee, a leader in vapor degreasing, has developed a lubricating system designed to keep throughput high and operating costs low. The “LabKoat” system is engineered specifically for use with the MicroCare DuraGlide® products.

The system has a number of clever features. It uses a small, automated hoist to lift products into and out of the lubricating bath. Refrigeration coils trap the carrier fluid inside the machine, maximizing the stability of the concentration of

About MicroCare

MicroCare Corp. is an industry-leading manufacturer of high-performance products used for critical cleaning, coating and lubrication. These products and tools improve quality, reduce operating costs and help protect the environment. Since 1983 MicroCare has helped clients improve their processes in industries as diverse as electronics assembly, telecommunications, aerospace and transportation, medical devices and other precision cleaning applications. MicroCare is constantly innovating new cleaning products and processes to help customers reduce costs and improve quality.

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¹ Friction is an extremely complex topic, with many subtle nuances. For more details about coefficients of friction, one reliable source is: http://www.roytech.co.uk/Useful_Tables/Tribology/co_of_frict.htm

the lubricant. A sliding lid automatically closes when the system it is in use, keeping costs down. The system is scalable to larger, floor-mounted systems if required.

Once the system is programmed, operation could not be easier. Clean parts are loaded into the basket and the basket is placed on the hoist. As the coating process begins, the operator is free to leave and perform other tasks. The system slowly drops the parts into the coating fluid, keeps them submerged for the allotted time, and then slowly raises the parts into the vapor for drying. Ultimately the parts come out clean, dry, and evenly coated with the DuraGlide® dry lubricant. Throughput is fast: cycle times range from 30 seconds to 3-4 minutes, depending upon the application and the repeatable process makes validation easy.

Rob Lee Joins MicroCare

Mr. Robert A. Lee has joined the MicroCare sales team as a regional sales manager for precision cleaning products. Mr. Lee spent 22 years with DuPont Fluorochemicals (now Chemours). He brings a deep knowledge of fluorinated materials to MicroCare, coupled with strong technical, marketing, finance and manufacturing backgrounds. He worked with customers to improve safety/health, technical performance, and minimize environmental footprints.

Mr. Lee graduated #1 in his class from the Lerner College of Business and Economics for his M.B.A. and earned his B.S. degree in thermodynamics from the University of Delaware. As a volunteer, he taught economics at McKean High School in Delaware, coaching an economics team that won the Delaware JA Economics Competition four straight years. He also is an avid runner who has completed two marathons and one biathlon.



MicroCare is very pleased to welcome Mr. Lee to our critical cleaning team.

Products Mentioned In This Newsletter



Illustrating a treated and untreated surface, the thin DuraGlide® coating is visible on the right edge of this steel coupon after partial immersion in the LabKoat system.

DuraGlide® dry lubricants from MicroCare are ISO 10993 medical-grade certified and offer many money-saving benefits. They have outstanding particle “hang-time” in the carrier fluid that results in smoother, more consistent lubricant coatings. They can be calibrated for consistent results. They are nonflammable, non-migrating and inimical to bioburden issues. The coatings are compatible with both ETO and radiation sterilization processes.

Baron-Blakeslee LabKoat machines are available from the Solvent Equipment Division of Reliance Specialty Products, Elk Grove Village, Illinois, USA. Reliance specializes in precision cleaning process development. Phone: +1 847.640.8923