

# Microseal®

Impingement Lubricant Process



*Microseal delivers proven performance on civil and military aircraft components including air pressure, hydraulic, control and ejection systems, pumps, motors and landing gear.*

## Microseal®—The Ideal Solution for Tight Tolerance Applications

E/M Coating Services is the exclusive source for the Microseal® process. The Microseal process succeeds where conventional fluid lubricants fail. With applied characteristics unlike other methods of solid film lubrication, the process incorporates unique application equipment and techniques, resulting in an ultra thin, firmly adherent solid film lubricant that fills only surface voids.

Shock, radiation, vibration, acceleration, and electrical discharge have no effect on Microseal. Static, sliding, and rolling load-bearing modes are all compatible with the process, and application will not affect base material hardness, temper, flexibility or other properties. It does not attract contaminant particles.

Microseal is designed to perform in hard vacuum and in extreme temperatures ranging from -423°F to 2000°F (-253°C to 1093°C). The process:

- Creates a continuous lubricating surface that reduces friction and prevents galling and seizing
- Remains stable under extreme environmental conditions
- Dissipates heat
- Adapts to a wide variety of substrates
- Withstands loads beyond the limits of even the hardest base materials without extruding or deforming
- Cannot be removed without removing some of the substrate surface

### Locations

#### United States

Chicago, Illinois	630-620-6808
Hartford, Connecticut	860-224-9148
Minneapolis, Minnesota	651-780-3202
Los Angeles, California	
North Hollywood	818-983-1952
Chatsworth	818-407-6280

#### Canada

Brampton	905-791-8002
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#### China

Suzhou	86-158-6241-7890
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#### Germany

Unna	49-2303-91880
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#### United Kingdom

Evesham	44-1386-421444
Glasgow	44-141-638-8600

## Typical Applications

Microseal® has proven effective in handling the following challenging applications.

### Aerospace

In many instances, Microseal will work where no other wet or dry lubricant will perform. Aerospace industry applications include vital satellite parts, spaceships, landing vehicles and NASA equipment that must perform under the extreme conditions of deep space with little or no maintenance. In addition, Microseal performs on US military missile systems, missile components, fuel transfer systems, silo doors and support hardware.

### Die and Mold Release

Microseal-treated aluminum extrusion and die casting molds offer greater production speed and accuracy. Molds frequently do not require further treatment between cycles and the lubricated surface improves finishes. Plastic injection molds benefit from Microseal as a permanent release agent over many thermoplastic applications. It adheres tenaciously to surfaces so molds don't require spray lubricants, thereby improving processing speed and quality.

### Unique Properties

Microseal provides benefits that are unlike other lubricating mediums. Unlike the majority of solid film lubricants, it can lubricate in a wet environment such as a gear case with oil. Microseal has minimal impact on tight tolerance components such as bearings. It can be applied over hard plating and frequently doesn't require a pre-treatment.

### Elastomeric Materials

Microseal treated "O" rings, gaskets, and seals improve lubricity and prevent parts from sticking upon actuation, even after long periods of inactivity.

### Welding

Microseal will prevent welding spatters from adhering permanently to the nozzle. After welding, any residue can be removed with a gentle tap.

### Industrial Applications

Applications for the Microseal process are virtually unlimited: computer hardware, industrial components, appliances, bearings, watches, cameras, hydraulic pumps and many more.

# CURTISS - WRIGHT

*E/M Coating Services is a division of Curtiss-Wright Surface Technologies. For more information, visit [www.cwst.com](http://www.cwst.com).*

## The Microseal® Process

E/M Coating Services applies the Microseal® process to surfaces using a specially designed, patented air tool that mixes micro-size particles. Particles leave the tool at speeds of nearly 600 feet per second, depositing a firmly adherent thin film that fills the voids. The impinged coating is then cured, preferably for two hours at 300°F. Cure times and temperatures depend upon base material thermal properties. With some substrates, Microseal can cure in several days at room temperature.

Microseal is self-limiting. Regardless of the surface geometry of the treated part, once the coating reaches a thickness of fifty to eighty millionths of an inch, no further coating will be accepted. Coverage is uniform on all surfaces the air tool can reach, and the process is burnishable to original dimensions, eliminating the need for special machining or tolerance allowance.

Due to the complex and proprietary nature of the equipment, Microseal application must take place at one of E/M Coating Services worldwide facilities. We inspect incoming parts for cleanliness and freedom from surface defects and closely monitor the entire application process. Final inspection before shipment ensures compliance with your specifications and drawings.

Although originally developed for the aerospace industry where exotic materials must operate under extreme conditions without compromising lubricity, Microseal can be applied to any part for improved thin film lubrication. However, applications with high unit loads may require the use of Everlube® resin bonded dry film coatings.

## The Physical Properties of Microseal®

The Microseal 100-1 process is, to a degree, electrically conductive. Certain applications realize a surface conductivity improvement of up to 10 percent. In addition, the Microseal 100-1 process can drain static charges from glass or plastic. Microseal 100-1 and 200-1 processes conform to SAE specifications AMS2525 and AMS2526, respectively. Microseal 300-1 process conforms to AMS2530 and DOD-L-85645, Class II.



Microseal® Process	Lubricant Employed	Maximum Dimensional Surface	Thermal Stability in Air		Thermal Stability in Vacuum	Compatibility
			Low	High		
100-1	HIGH PURITY ELECTRIC FURNACE GRAPHITE	<.0001" (.0025 mm)	-423°F (-253°C)	1200°F (649°C)	2700°F (1482°C)	Distilled water, MIL-H-5606 hydraulic fluid, DC200 silicone fluid, Rockwell Nordstrom 147 grease, UDMH compatible grease, IRFNA compatible grease, solid propellents, Skydrol 500 A hydraulic oil or N <sub>2</sub> O <sub>4</sub>
200-1	MOLYBDENUM DISULFIDE	<.0001" (.0025 mm)	-325°F (-198°C)	750°F (399°C)	1400°F (760°C)	Distilled water, MIL-H-5606 hydraulic fluid, DC200 silicone fluid, Rockwell Nordstrom 147 grease, UDMH compatible grease, IRFNA compatible grease
300-1	TUNGSTEN DISULFIDE	<.0001" (.0025 mm)	-325°F (-198°C)	850°F (454°C)	1400°F (760°C)	Distilled water, MIL-H-5606 hydraulic fluid, DC200 silicone fluid, Rockwell Nordstrom 147 grease, UDMH compatible grease, IRFNA compatible grease

Microseal is not intended as a corrosion-preventive film. When applied to metal parts operating in corrosive environments, a thin oil coating will better protect the parts from corrosion and aid in lubricity. In addition, while Microseal often increases the efficiency of non-detergent lubricants, it should not be used with detergent oils.