

Technical Data

Ecoalube[®] 643

Lead-free MoS₂ Solid Film Lubricant

**CURTISS -
WRIGHT**

Everlube[®] Products

Surface Technologies Division

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Product Description

Ecoalube 643 is a thermally cured, lead-free, MoS₂ based solid film lubricant with a high molecular weight epoxy binder system. This coating provides excellent chemical resistance, wear life, abrasion resistance and performs best in higher load carrying applications. Ecoalube 643 is approved/qualified to many aerospace and industrial specification; these listings can be verified at <http://www.everlubeproducts.com/specifications.php>. When requesting pricing or ordering of product, listing of the specification and revision is required to assure product certification compliance

Features / Benefits

- Excellent wear life and abrasion resistance
- Excellent chemical resistance
- RoHS compliant
- Ideal for higher load carrying applications

Markets

- Aerospace/Defense
- Mechanical Components
- Chemical Processing
- Industrial Machinery & Equipment

Typical Applications

- Bushings, shafts, splines and cams
- Slides, guides, rails, and gears
- Virtually all fasteners
- Threaded connectors and disconnects

Physical Properties

Lubricating Solid	MoS ₂
Binder	High molecular weight epoxy
Color and Appearance*	Gray/Black matte finish
Carrier	Solvent Borne
Solids (by weight)*	40% to 44%
Density*	9.6 ± 0.5 lb/gal (1150 ± 60 grams/liter)
Flash Point	16°F (-8.9°C)
Volatile Organic Compound	668 grams/liter (5.6 lb/gal)
Theoretical Coverage ¹	654 ft ² /gal @ 0.5 mils (16.1 m ² /liter @ 12.7 microns)
Alternative or Repair Coatings	A low VOC alternative coating for Ecoalube 643 is our Everlube 9002. For touch-up applications, Perma-Slik RMAC works well with Ecoalube 643.

Processing Information

Dry Film Thickness	0.2 to 0.5 mils (5 to 13 microns)
Dilution/Cleanup Solvent	MEK, 642 Solvent or 50/50 MEK/Toluene (by volume)
Dilution Ratio (for spray)	1:3 (Product to Solvent by volume) Adjust as needed
Cure Cycle	1 hr @ 400°F +/- 25°F
Suggested Pretreatment	Grit Blast and/or Phosphate
Suggested Application Methods	Dip Spin / Spray

For additional information, please see Processing Bulletin # 3000-A

Continued

Typical Functional Properties

	<u>ASTM Test Method</u>	<u>Value</u>
Corrosion Resistance*		
Test Panel	ASTM B117	>100 hrs. @ 5% Neutral Salt Spray
Test Panel Coating Method		0.5 mil on grit blasted steel panel
Abrasion Resistance	ASTM D4060	Excellent
Coefficient of Friction	ASTM D2714	0.04 to 0.08
Operating Temperature Range (continuous)		-100°F to 400°F (-73°C to 204°C)
Load Carrying Capacity*	ASTM 2625, Method B	> 250,000 psi
Wear Life*	ASTM 2625, Method A	> 450 minutes
Pencil Hardness	ASTM D3363	>4H (gouge)
Thermal Stability	ASTM D2511	Pass
Film Adhesion	ASTM D2510 Method A	Pass

Chemical Resistance (ASTM D-2510, Method C)

Isopropyl Alcohol or Ethyl Alcohol	Pass	Diethanolamine	Pass
Mineral Spirits or Paint Thinner	Pass	Hydrochloric Acid (10%)	Pass
Toluene	Pass	Sodium Hydroxide (10%)	Pass
Acetone	Pass	Distilled Water	Pass
Skydrol 500 (room temp)	Pass	Jet Fuels (JP-4)	Pass
Hydraulic Fluids	Pass	Trichloroethylene:	Pass
Anti-Icing Fluids	Pass	Cleaning Compound	Pass
Trichlorofluoroethane	Pass	Reagent Water	Pass
Substitute Ocean Water	Pass	Lubricant, Semi-Fluid	Pass
Silicone Based Damping Fluid	Pass	Turbine Fuel	Pass
Low Temp Weapon Lube Oil	Pass	Aircraft Lube Oil	Pass
Weapons Lubricant, Cleaner & Preservative	Pass	Methyl Ethyl Ketone (MEK)	Pass

Note: Chemical resistance may vary depending on the cure cycle. N/R = Not recommended

Additional InformationShelf Life and Storage:

One year from date of shipment, stored in a factory sealed container between the temperatures, 40°F to 100°F. Coatings are thermally stable, but we do not recommend prolonged exposure outside of the specified temperature range listed above.

Packaging:

Ecoalube 643 is available in Gallons, 5-gallon pails, and Quarts

Warranty:

No representation of warranty is expressed or implied and all warranties including warranties of marketability and fitness for use are expressly disclaimed. Nothing herein shall be construed as permission or recommendation to practice a patented invention without a license.

* These tests are performed on each production lot

¹ Based on 100% transfer efficiency at a dry film thickness of 0.0005 inch (12.5 microns).

Issue Date: 6/01/05, Latest Revision Date: 11/14/18