



LC-300

SOLID FILM LUBRICANT: HEAT CURE

SERIES V765

**QUALIFIED TO SAE AS5272 TYPES I & II
RoHS COMPLIANT**



PORT BYRON, IL 61275 • 1-309-523-2121
1-800-747-1084 • FAX: 1-309-230-9745
www.sandstromproducts.com

DESCRIPTION

Sandstrom LC-300 is a lead free lacquer-like dry film lubricant coating containing molybdenum disulfide and corrosion-inhibiting pigments. This Heat Curing material prevents corrosion, galling, seizing and fretting. It is a low-friction coating that exhibits long wear life when operated at -320°F to +400°F under loads exceeding 100,000 psi.

LC-300 may be applied by brush, dip, dip spin or spray method. After it is heat cured, LC-300 is virtually unaffected by atmospheric and fretting corrosion, solvents, acids, oils and degreasers and is not re-softened at elevated temperatures.

Dependent on the bake schedule, LC-300 is qualified to both AS5272 Type I and Type II. The wet coating itself is the same, allowing inventory of one product to meet two specifications.

Basic Product Guidance:

- Use LC-300 or #099 on metals that may be adversely affected by a 1 hour @ 400°F bake cycle.
- Use 9A on metals not affected by higher bake temperatures.
- Use #099 to meet low VOC requirements.

Please consult Sandstrom Technical Rep during product selection process for best results.

OUTSTANDING FEATURES/BENEFITS

- Superior Resin System over competitor product provides:
- Greater Corrosion Protection
- Longer Endurance Life
- Broader Operating Temperature Range
- **LC-300 CONTAINS NO LEAD OR GRAPHITE**

NOTICE

Before using this product, read all warnings, limitations and safety information printed on the product label, Safety Data Sheet (MSDS), and Technical Data Sheet. The properties listed on this sheet are not intended for use as a specification. Please contact our Technical Service Team.

Refer to our website for answers to common questions:
<https://www.sandstromproducts.com/resources/FAQs/>

TYPICAL USES

Sandstrom LC-300 is an excellent solution to the problem of

- Where "clean operation" is desired (does not collect dirt and debris like grease and oils).
- Where parts may be subjected to frequent disassembly.
- Where a protective coating and sacrificial break-in lubricant are needed.
- Where fretting and/or galling is a problem (e.g., splines, universal joints, keyed bearings).
- Where easy release is desired (e.g., acme nuts, screws, PVC molds).
- Where metallurgical properties are adversely affected by baking at temperatures higher than 300°F.
- That will be operated in corrosive atmospheres.
- That may be stored for long periods.
- That are seldom lubricated once they leave the factory and permanent lubrication is desired.
- Where operating pressures exceed the load-bearing capacities of ordinary oils and greases.

LIMITATIONS

Do not use LC-300 where there is potential for contact with food.

COMPOSITION AND PHYSICAL PROPERTIES (SAME FOR USE UNDER TYPE I & TYPE II)			
Net Weight per gallon <i>ASTM D1475</i>	10.20 lbs. ± 0.2 lb.	Vehicle	Modified Vinyl
Weight Solids <i>ASTM D2369</i>	41.0% ± 1%	Lubricating Pigment	Molybdenum Disulfide
Volume Solids	20.0% ± 1% (Theoretical)	Color	Flat Dark Gray
VOC	6.05 lbs. / gallon	Coverage Rate *	625 sq. ft./gal @ 0.5 mil
Viscosity ^ <i>ASTM D4212</i>	85 - 115 seconds, #1 EZ Zahn @ 77°F	Recommended Coats	1
Shelf Life	12 months from date of manufacture	Dry Film Thickness	0.5 mil
Storage Conditions	≤ 100°F		
Flash Point	21°F ± 2°F Setaflash		
* Actual figures do not include spray loss. Also allow for surface irregularities and porosity, as well as material loss when mixing. ^ Property tested with each production batch.			

PERFORMANCE & FUNCTIONAL PROPERTIES (DEPENDENT ON HOW THE PRODUCT IS CURED- SEE BAKING INSTRUCTIONS, PAGE 3)			
TYPE I		TYPE II	
Coefficient of Friction <i>ISO 16047 Standard</i>	0.09	Coefficient of Friction <i>ISO 16047 Standard</i>	Not tested
Corrosion Protection:		Corrosion Protection:	
<i>Sulfurous Acid-Salt Spray Fed-STD-791c Method 5331.1 ^</i>	4 cycles with no effect *	<i>Sulfurous Acid-Salt Spray Fed-STD-791c Method 5331.1</i>	Not tested
<i>ASTM B117 MIL-DTL-16232 Type M Class 3</i>	2900+ hours *	<i>ASTM B117 MIL-DTL-16232 Type M Class 3 ^</i>	1500 hours
<i>ASTM B117 Grit Blasted Bare Steel</i>	500+ hours	<i>ASTM B117 Grit Blasted Bare Steel</i>	Not tested
<i>Aluminum Corrosion Resistance Per ASTM D2649</i>	Pass		
Fluid Resistance:		Fluid Resistance:	
<i>SAE AS5272 Table 3 Fluids ASTM D2510 C</i>	Pass	<i>SAE AS5272 Table 3 Fluids ASTM D2510 C</i>	Pass
Load Carry Capacity ^ <i>ASTM D2625B</i>	2500 – 3000 lbf	Load Carry Capacity ^ <i>ASTM D2625B</i>	3000 lbf average
Operating Temperature Range	-320°F to 400°F	Operating Temperature Range	-320°F to 400°F
Thermal Stability <i>ASTM D2511</i>	Pass	Thermal Stability <i>ASTM D2511</i>	Pass
Wear Life ^ <i>ASTM D2625A</i>	298 minutes average	Wear Life ^ <i>ASTM D2625A</i>	483 minutes average
Off Gassing <i>ASTM E595</i>	TML (%) .98 CVCM (%) 0.04 WVR (%) 0.09		
*Tests halted before failure. ^ Property tested with each production batch.			

GENERAL

Sandstrom LC-300 is a paint-like material consisting of lubricative pigments dispersed in a thermosetting resin system thinned with appropriate solvents. For maximum service, the APPLICATION INSTRUCTIONS MUST BE FOLLOWED CLOSELY.

FILM THICKNESS & ENGINEERING TOLERANCE

As supplied, Sandstrom LC-300 will yield a film thickness of about .0005 inches per dip coat. Usually engineering tolerances will permit necessary minimum film buildup of .0002 to .0003 inches without interference. If excess buildup does occur and a force fit is necessary, burnishing lightly will assist in mating the parts. The remaining excess will be worn away in the first few cycles of operation. Whenever possible, the proper tolerances should be designed into the part.

Whenever possible, treat both contact surfaces (i.e., the shaft and the bearing).

COVERAGE

One gallon of this material will cover 625 sq. ft. with a dry film thickness of .0005 inches. Coverage depends upon methods of application and other variables such as overspray and type of surface to be coated. Above coverage rates are based on 100% efficiency.

SURFACE PREPARATION

The following recommendations are given to produce optimum properties for this coating when applied over various substrates. Alternative surface preparation may be used to produce the desired end use properties. It is the responsibility of the user to determine the suitability for use in their application when any alternative surface preparation is used. Please contact Sandstrom Products Company for substitute surface preparations if recommended steps cannot be followed.

Application on steel. Pre-clean surface with aliphatic naphtha or any other EPA compliant cleaner that sufficiently cleans surface to pass ASTM F22. Abrasive blast surface with 180-220 grit aluminum oxide (25-50 RMS optimum). Phosphate IAW MIL-DTL-16232 (weight should be 11-22 g/m²), type M, class 3 (optimal performance) or type Z, class 3.

Application on stainless steels. Pre-clean surface with aliphatic naphtha or any other EPA compliant cleaner that sufficiently cleans surface to pass ASTM F22. Abrasive blast surface with 180-220 grit aluminum oxide (25-50 RMS optimum). Passivate surface with ASTM A967, types nitric 1, nitric 2 or nitric 3, as applicable.

Application on aluminum and aluminum alloys. Pre-clean surface with aliphatic naphtha or any other EPA compliant cleaner that sufficiently cleans surface to pass ASTM F22. Sulfuric acid anodize IAW MIL-A-8625 and seal surface seal with hot deionized water (>180°F for 30 minutes).

Application on titanium and titanium alloys. Degrease surface to be coated with aliphatic naphtha or any other EPA compliant cleaner that sufficiently cleans surface to pass ASTM F22. Abrasive blast surface with 180-220 grit aluminum oxide (25-50 RMS optimum) and alkaline anodize.

Application on copper and copper alloys. Pre-clean surface with aliphatic naphtha or any other EPA compliant cleaner that sufficiently cleans surface to pass ASTM F22. Abrasive blast surface with 180-220 grit aluminum oxide (25-50 RMS optimum). Form a black oxide finish on surface.

IMPORTANT! DO NOT TOUCH CLEAN SURFACE WITH FINGERS - OIL FROM THE HANDS WILL INTERFERE WITH PROPER COATING ADHESION.

MIXING

IMPORTANT! THIS LUBRICANT CONTAINS HEAVY PIGMENTS WHICH SETTLE RAPIDLY. THEREFORE, IT SHOULD BE MIXED THOROUGHLY BEFORE USE UNTIL HOMOGENEOUS, AND FREQUENTLY ENOUGH DURING APPLICATION TO ENSURE NO SETTLING OF PIGMENTS OCCURS.

THINNING

For brushing – Use as supplied.

For spraying - Sandstrom LC-300 may be thinned using D169 Thinner. The suggested starting point is 2 parts LC-300 to 1 part thinner.

For dipping - IF NECESSARY, use a slow drying thinner such as PM acetate in proportions that provide proper runoff characteristics. The suggested starting point is 4 parts of LC-300 to 1 part thinner.

For dip spin – Use D169 Thinner. Suggested starting point is 3 parts LC-300 to 1 part Thinner. Air dry 30 minutes then bake for 10 minutes @ 300°F between coats. Final bake is 1 hour @ 300°F. **For Spec work, follow instructions per the specification.**

APPLICATION

For Spec work, follow all instructions in the drawing.

Sandstrom LC-300 may be brushed, sprayed or dipped to the desired film thickness (usually .0003 to .0007 inches). Allow the surface to dry **at least** 30 minutes at 77°F ± 5°F and ≤ 70% relative humidity before baking. Lower temperatures and/or higher humidity may require a longer dry time to prevent film defects.

It is important to keep container closed when not in use to keep loss of solvents at a minimum and avoid a change in volume solids.

BAKING**BAKE SCHEDULE:**

To meet **AS5272 Type I** applications and yield optimum corrosion protection: Bake for **1 hour @ 300°F** in a forced draft Class A oven.

To meet **AS5272 Type II** applications and yield optimum wear life: Bake for **1 hour @ 400°F** in a forced draft Class A oven.

IMPORTANT! The hour begins when **the part** has reached temperature, NOT when it is placed in a Class A oven. In cases of very thick metals, an extra hour may be required to bring the part up to the proper temperature. Thermocouples may be used to determine the true temperature of the metal.

To test for complete cure, light rubbing with MEK on a rag should not remove coating to bare metal.

CLEANUP

Use the same solvents for cleaning tools as are recommended for thinning.

REMOVAL

In the event it is necessary to remove Sandstrom LC-300, physical removal is best (such as grit blasting, sanding, or grinding).

DANGER! USE WITH ADEQUATE VENTILATION.

IMPORTANT NOTICE TO BUYER / WARRANTY AND LIMITATIONS ON OUR LIABILITY

We warrant our products to be free of manufacturing defects and that they meet our current published physical properties and specifications. All information and suggestions presented are rendered gratis and are accurate to the best of our knowledge. They are based on technical data we believe to be reliable and are intended for use by persons having skill and "know-how" at their own discretion and risk. Prior to use, customers are cautioned to determine the suitability of our products for any given application through their own testing. NO WARRANTY IS MADE, EXPRESS OR IMPLIED, REGARDING SUCH INFORMATION. THE DATA ON WHICH IT IS BASED OR THE RESULTS OBTAINED FROM ITS USE OR THAT OUR PRODUCT SHALL BE MERCHANTABILITY OR FIT FOR ANY PARTICULAR PURPOSE. SUCH STATEMENTS ARE NOT INTENDED TO SUGGEST INFRINGEMENT OF ANY PATENT. Since conditions of use of our products are beyond our control, all suggestions and statements are made without guarantee, warranty or other responsibility, express or implied, on our part. We assume no responsibility for results obtained, or damages incurred, from their use beyond replacing material proved to be defective or refunding the purchase price of such material at our option. Acceptance of delivery of our product means you have accepted the terms of this warranty, whether or not purchase orders of other documents state terms that vary from this warning. No seller is authorized to make any representations or warranty or assume any other liability on our behalf with any sales of our products. SANDSTROM PRODUCTS COMPANY