LC-300

SOLID FILM LUBRICANT: HEAT CURE

SERIES V765

QUALIFIED TO SAE AS5272 TYPE I
RoHS COMPLIANT

SANDSTROM PRODUCTS COMPANY

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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.

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.

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 liquid oxygen or food.

COMPOSITION AND PHYSICAL PROPERTIES

Net Weight per gallon *ASTM D1475*	10.20 lbs. ± 0.2 lb.	**Vehicle**	Modified Vinyl
Weight Solids	41.0% ± 1%	**Lubricating Pigment**	Molybdenum Disulfide
Volume Solids	20.0% ± 1% (Theoretical)	**Color**	Flat Dark Gray
VOC	5.96 lbs./Gallon	**Cleanup**	See CLEANUP
Viscosity	80 - 115 seconds, #1 EZ Zahn @ 77°F	**Thinner**	See THINNER
Shelf Life	1 year from date of manufacture	**Coverage Rate ***	625 sq. ft./gal @ 0.5 mil
Storage Conditions	≤ 100°F	**Recommended Coats**	1
Flash Point	21°F ± 2°F Setaflash	**Dry Film Thickness**	0.5 mil

* Actual figures do not include spray loss. Also allow for surface irregularities and porosity, as well as material loss when mixing.

PERFORMANCE & FUNCTIONAL PROPERTIES

Coefficient of Friction *ISO 16047 Standard*	0.09	**Fluid Resistance:**	
Corrosion Protection:		*SAE AS5272 Table 3 Fluids ASTM D2510 C*	Pass
Sulfurous Acid-Salt Spray Fed-STD-791c Method 5331.1	4 cycles with no effect *	**Load Carry Capacity** *ASTM D2625B*	2500 – 3000 lbf
ASTM B117 MIL-DTL-16232 Type M Class 3	2900+ hours *	**Operating Temperature Range**	-320°F to 400°F
ASTM B117 Grit Blasted Bare Steel	500+ hours	**Thermal Stability** *ASTM D2511*	Pass
*Tests halted before failure.		**Wear Life** *ASTM D2625A*	298 minutes average

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.

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
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/m^2), 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.

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

STIRRING
IMPORTANT! THIS LUBRICANT CONTAINS HEAVY PIGMENTS WHICH SETTLE RAPIDLY. THEREFORE, IT SHOULD BE STIRRED THOROUGHLY BEFORE USE AND **CONTINUOUSLY** DURING APPLICATION.

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.

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 for 1 hour @ 300°F in a forced draft oven to yield optimum corrosion protection and wear life.

IMPORTANT! The hour begins when **the part** has reached 300°F, 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).

WARNINGS: Constant stirring is imperative for best results.

DANGER! USE WITH ADEQUATE VENTILATION.

Strict compliance to the instructions given in Surface Preparation, Thinning, Application, and Baking is very essential for obtaining optimum results.