

27A SOLID FILM LUBRICANT

AIR DRYING

SERIES E736 and E636

APROVED UNDER MIL-PRF-46147C

SANDSTROM
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GENERAL DESCRIPTION

Sandstrom 27A Dry Film Lubricant is a lacquer-like coating containing molybdenum disulfide and corrosion inhibiting pigments. This **Air Drying** material prevents corrosion, galling, seizing and fretting. It is a low-friction coating which exhibits long wear life when operated at -320°F to +300°F under loads exceeding 100,000 psi. **27A** should be applied where baking with the longer wearing, heat cured **Sandstrom 9A** or **LC-300** is not desirable.

Excellent **Corrosion Protection** and ease of application are its outstanding characteristics.

Once **Sandstrom 27A** has been applied to a properly prepared surface and allowed to cure, it is virtually unaffected by atmospheric and fretting corrosion, solvents, acids, oils and degreasers. **27A** can be applied to all metallic and non-metallic surfaces by spray or dip application. Complete application instructions are on the reverse of this sheet.

Packaged in Aerosol Cans, 27A is ideal for field touch-up of factory applied air-dry or baked on lubricants which have become scratched or worn.

RECOMMENDED USAGE

Sandstrom 27A is an excellent in-plant or field solution to the problem of lubricating parts:

- Where application of a baked-on lubricant is not possible
- Which may be operated in corrosive atmospheres
- That may be stored for long periods
- Which are seldom lubricated once they leave the factory and where permanent lubrication is desired
- Where operating pressures exceed the load-bearing capacities of ordinary oils and greases
- Where "clean operation" is desired
 (27A will not collect dirt and debris as do grease and oils)
- Where parts may be subjected to frequent disassembly
- Where a protective coating and sacrificial break-in lubricant is needed
- Where fretting and galling is a problem (such as splines, universal joints and keyed bearings)
- Where easy release is desired (such as threads of all kinds)

SANDSTROM 27A CONTAINS NO GRAPHITE

COMPOSITION AND PHYSICAL PROPERTIES

NET WEIGHT PER GAL	9.04 ± .2 lbs.	VEHICLE TYPE	100% Epoxy
SOLIDS CONTENT (By weight)	24% Minimum-Bulk 30g Minimum-Aerosol	LUBRICATIVE PIGMENT	Molybdenum Disulfide
VISCOSITY	30-40 sec (#1 Zahn) @ 77°F	STORAGE CONDITIONS	40°F TO 90°F
FLASH POINT	45°F + 2°F Setaflash (Bulk) 12°F + 2°F Setaflash (Aerosol)	SPECIFICATIONS	QPL: MIL-PRF-46147C
OPERATING TEMP. RANGE	-320°F to +300°F	WEAR LIFE	130 - 160 Minutes Average ASTM D2625A
COLOR	FLAT DARK GRAY	LOAD CARRYING CAPACITY	2500 lbs Average ASTM 2625B
SHELF LIFE	1 year from date of shipment	CORROSION PROTECTION	OVER 500 hours* (ASTM B117 @ 0.5 mil on MIL-DTL-16232 Type M Class 3)

*Test halted before failure occurred

NOTICE

Before using this product, read all warnings and safety information printed on the label, the Material Safety Data Sheet and the Technical Info-Guide

GENERAL

For maximum service, the **APPLICATION INSTRUCTIONS MUST BE CLOSELY FOLLOWED**. The lubricant is flammable and the safety precautions usually followed when using flammable materials must be observed.

FILM THICKNESS AND ENGINEERING TOLERANCES

As supplied, **Sandstrom 27A** will yield a film thickness of about .0003 inches without interference. If excess build-up 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 theoretically cover 530 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 surface preparations are recommended for the individual metals listed to develop maximum adhesion, wear life, and corrosion protection. Please contact Sandstrom Products Company for substitute surface preparations if recommended steps cannot be followed.

STEEL - Degrease using naphtha meeting the requirements of FED spec TT-N-95; grit blast(25-50 rms optimum); remove grit blast debris from surface; phosphatize according to MIL-DTL-16232 Type M, Class3 or Type Z Class 3.

STAINLESS STEEL - Degrease using naphtha meeting the requirements of FED spec TT-N-95; grit blast (25-50 rms optimum); remove grit blast debris from surface; passivate.

ALUMINUM - Degrease using naphtha meeting the requirements of FED spec TT-N-95; anodize according to MIL-A-8625 Type I, II or III Class 1.

TITANIUM - Solvent wash (nonchlorinated) and alkaline anodize (Tiodize Type I or II).

COPPER ALLOYS - Degrease using naphtha meeting the requirements of FED spec TT-N-95; then pretreat using one of the following methods (in order of preference).

- a) Black oxide treat (according to MIL. Spec.MIL-F495C)
- b) Bright dip, or grit blast (25-50 rms optimum)

IMPORTANT! AVOID TOUCHING THE SURFACES TO BE COATED WITH THE FINGERS - OIL FROM THE HANDS WILL INTERFERE WITH PROPER COATING. 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.

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 is accurate to the best of our knowledge. They are based on technical data which 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 IT'S USE OR THAT OUR PRODUCT SHALL BE MERCHANTABLE 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 or 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. ©2/1/98 SANDSTROM PRODUCTS COMPANY 3/7/03

THINNING

Apply **27A** by conventional spray. To get proper viscosity for spraying, use 2 parts 27A to 1 part D185 Thinner Blend or 1 part **27A** to 1 part D185 Thinner Blend (by volume). **Note: 27A** may also be applied by dipping (no thinning required).

APPLICATION

Sandstrom 27A should be sprayed or dipped to the desired film thickness (usually .0003 to .0007 inches). Allow the surface to dry at least 30 minutes to 1 hour before doing light assembly work.

Note: The dry film thickness may be increased to enhance the corrosion resistance and wear life. The coating should **not** exceed 0.0015 inches. If applied at the higher film thickness increase the initial dry time to 90 minutes.

Note: All instructions are based on product and part temperatures of 77°F and 50% relative humidity. Should product need temperature adjustments use a hot or cold water bath.

DRYING

This material may be force dried by using moving hot air or infrared bulbs. Air drying 18 hours will yield maximum hardness. After a flash time of 30 minutes, **27A** can be force-cured according to the following schedule:

- 90 minutes @ 150°F or
- 45 minutes @ 175°F or
- 25 minutes @ 200°F.

Note: Start time when parts reach temperature.

Keep container of 27A closed when not in use to keep loss of solvents at minimum and avoid change in volume solids.

CLEANUP

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

REMOVAL OF SANDSTROM 27A

In the event it is necessary to remove **27A**, physical removal is best (such as grit blasting, sanding or grinding). Also, selected epoxy cold strippers.

THE FINISHED SURFACE

This material can be honed, lapped, or burnished to a smooth surface of about 7 micro inches with a coefficient of friction of .08 or less.

*Strict compliance to the instructions given in Surface Preparation and Stirring is essential to obtain optimum results.

WARNINGS!

FLAMMABLE

Keep away from heat, sparks, and open flame.

AVOID BREATHING OF VAPORS

Use with adequate ventilation.

Contains METHYL ETHYL KETONE

If swallowed, do not induce vomiting - Call physician immediately.