



SANDSTROM #170
SOLID FILM LUBRICANT: HEAT CURE
SERIES E170
MEETS BMS 3-8 TYPE II

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DESCRIPTION

Sandstrom #170 is a liquid-dispersed, water-borne solid film lubricant developed to fulfill the requirements of Boeing BMS 3-8 specification. The product is designed for use where wide-ranging temperatures from -100°F to +500°F and high loads are encountered and low friction is necessary.

OUTSTANDING FEATURES/BENEFITS

- Arsenic-, Lead- and Antimony-free

TYPICAL USES

- IAW Boeing Process Specification BAC 5811

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.

LIMITATIONS

- Apply in accordance with BAC5811 to meet BMS 3-8 spec.
- Do NOT freeze or product will become unusable
- Shelf life cannot be extended past 12 months from DOM

COMPOSITION AND PHYSICAL PROPERTIES			
Net Weight per gallon <i>ASTM D1475</i>	10.5 ± 1.0 lbs./gallon	Vehicle	Epoxy
Weight Solids	>40.00%	Lubricating Pigment	Molybdenum Disulfide & Graphite
Volume Solids	26.50% (Theoretical)	Color	Gray
VOC <i>ASTM D3960</i>	≤ 250 grams/L	Finish	Matte
Odor	Mild Solvent	Coverage Rate*	850 sq. ft./gallon @ 0.5 mil DFT
pH <i>ASTM E70</i>	7.0 – 7.5	Recommended Coats	1
Viscosity	60 +/-5 KU @ 77°F	Dry Film Thickness	0.5 mils
Shelf Life	12 months from Date of Manufacture		
Storage Conditions	40°F to 100°F		
Freeze/Thaw Stability	Do NOT Freeze		
Flash Point	216°F		

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

PERFORMANCE AND FUNCTIONAL PROPERTIES			
Chemical/Fluid Resistance:			
<i>BMS3-8 Section 8.2 Fluids</i> <i>ASTM D2510 A&C, MIL-L-7808,</i> <i>Skydrol, Water</i>	Pass	Operating Temperature Range	-100°F to +500°F
Coefficient of Friction <i>BSS7223</i>	.0219	Solid Ingredient Corrosion Test <i>BMS 3-8 Section 8.1</i>	Pass
Corrosion Protection:		Thermal Stability <i>ASTM D2511</i>	Pass
<i>ASTM D2649:</i> <i>Anodized Aluminum</i>	Pass	Wear Life <i>BSS7223</i>	> 33.18 hours average

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 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 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

GENERAL

This product 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, this product will yield a film thickness of about 0.0002 to 0.0005 inches per spray application. Usually engineering tolerances will permit necessary minimum film buildup of 0.0002 to 0.0003 inches without interference. Whenever possible, the proper tolerances should be designed into the part.

COVERAGE

One gallon of this material will cover 850 sq. ft. with a dry film thickness of 0.0005 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/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 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.

NOTE! Not recommended for use over bare steel.

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 COATING CONTAINS HEAVY PIGMENTS WHICH SETTLE RAPIDLY. THEREFORE, IT SHOULD BE STIRRED THOROUGHLY BEFORE USE AND CONTINUOUSLY DURING APPLICATION. **Do not use paint shaker as excessive foam buildup can occur.**

THINNING

For brushing – Use as supplied.

For spraying. Reduce sparingly (10% by volume) with deionized water or a combination of D151 Thinner and deionized water blended 1:1 by volume

For dipping. Reduce up to a maximum of 3:1 with deionized water or a combination of D151 Thinner and deionized water blended 1:1 by volume to maintain the dry film thickness specified.

APPLICATION

For Spec work, follow all instructions in the drawing.

Sandstrom #170 may be brushed, sprayed or dipped to the desired film thickness (usually 0.0003 to 0.0007 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.

A flash cure at 150°F - 160°F for 10 - 30 minutes is an acceptable alternative to the air drying method.

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, DRYING, CURING

1 hour @ 400°F (204 ±15°C) OR 2 hours @ 300°F (150 ±15°C).

IMPORTANT! The time begins when **the part** has reached temperature, NOT when it is placed in the 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.

Please consult Sandstrom Technical Service for alternative baking options to influence lubricity and/or corrosion protection.

CLEANUP

Use soap and water.

REMOVAL

In the event it is necessary to remove Sandstrom #170, physical removal is best (such as grit blasting, sanding, or grinding).

WARNINGS: Constant stirring is imperative for best results.

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 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 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

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