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 *ASTM D1475*	10.5 ± 1.0 lbs./gallon	**Vehicle**	Epoxy
Weight Solids	42.00% (Theoretical)	**Lubricating Pigment**	Molybdenum Disulfide & Graphite
Volume Solids	26.50% (Theoretical)	**Color**	Gray
VOC *ASTM D3960*	≤ 250 grams/L	**Finish**	Matte
Odor	Mild Solvent	**Coverage Rate***	850 sq. ft./gallon @ 0.5 mil DFT
pH *ASTM E70*	7.0 – 7.5	**Recommended Coats**	1
Viscosity	65 – 75 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:			
BMS3-8 Section 8.2 Fluids ASTM D2510 A&C, MIL-L-7808, Skydrol, Water	Pass	**Operating Temperature Range**	-100°F to +500°F
Coefficient of Friction *BSS7223*	.0219	**Solid Ingredient Corrosion Test** *BMS 3-8 Section 8.1*	Pass
Corrosion Protection:		**Thermal Stability** *ASTM D2511*	Pass
ASTM D2649: Anodized Aluminum	Pass	**Wear Life** *BSS7223*	> 33.18 hours average

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/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.

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.