

TECHNICAL INFORMATION GUIDE

HI-T 650 SOLID FILM LUBRICANT AIR OR HEAT CURING

SERIES S765

APPROVED UNDER PWA550T

SANDSTROM
PRODUCTS COMPANY

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DESCRIPTION

Sandstrom **HI-T 650** Solid Film Lubricant is a lacquer-like coating containing molybdenum disulfide and corrosion-inhibiting pigments with a silicone vehicle. It is a specialized product designed to prevent galling and provide long wear life at high temperatures (500°F to 750°F) exceeding the operational ranges of **Sandstrom 9A** and **27A**.

Higher pigment loading protects all metals from galling, fretting, and seizing. This solid film lubricant exhibits extremely low friction and anti-galling characteristics at loads in excess of 100,000 psi. It may be applied by spray or dip. Complete application instructions are on the reverse of this sheet.

HI-T 650 CONTAINS NO GRAPHITE

TYPICAL USES

Sandstrom HI-T 650 is an excellent solution to the problem of lubricating parts:

- Where high operational temperatures are incurred
- Which are seldom lubricated once they leave the factory
- Where operating pressures exceed the load bearing capacities of ordinary oils and greases
- Where "clean operation" is desired (**HI-T 650** will not collect dirt and debris as do grease and oils)
- Where parts may be subjected to frequent disassembly
- Where easy release is desired
- Where a protective coating and sacrificial break-in lubricant are needed
- Where fretting and galling is a problem (such as splines, universal joints, and keyed bearings)

COMPOSITION AND PHYSICAL PROPERTIES

NET WEIGHT PER GALLON	7.50 - 9.16 lbs	COLOR	Flat Dark Gray
SOLIDS CONTENT	21.5 - 26% (By Wt.)	SHELF LIFE	1 year from date of shipment when stored at 40°F to 100°F
VISCOSITY	33 - 35 sec. (#1 Zahn cup)	THERMAL STABILITY	Will not chip, crack or peel at temperatures exceeding 1000°F
THEORETICAL VOC	6.76 lbs/gal (816.6 g/L)	WEAR LIFE	200 - 250 Minutes (Falex @ 1000 lbs. gauge load)
FLASH POINT	54°F ±2°F Setflash	LOAD CARRYING CAPACITY	3000 - 3500 lbs.
OPERATING TEMP. RANGE	Up to 750°F Intermittent temperatures to 1200°F	CORROSION PROTECTION	Approximately 100 hrs. (5% salt fog @ .0005" film thickness over zinc phosphated steel)
VEHICLE TYPE	Modified Silicone		
LUBRICATIVE PIGMENT	Molybdenum Disulfide		

NOTICE

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

GENERAL

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

FILM THICKNESS AND ENGINEERING TOLERANCES

As supplied, **Sandstrom HI-T 650** will yield a film thickness of about .0001 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 1000 sq. ft. with a dry film thickness of .0003 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; zinc phosphatize (1100-1400 milligrams per sq. ft.).

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.

ALUMINUM - Degrease using naphtha meeting the requirements of FED spec TT-N-95; chemical etch or grit blast; remove grit blast debris from surface. **HI-T 650** works best over aluminum surfaces which have not been anodized.

TITANIUM - Solvent wash (non-chlorinated); grit blast; remove grit blast debris from surface. **HI-T 650** works best over titanium which has not been anodized.

COPPER ALLOYS - Degrease using naphtha meeting the requirements of FED spec TT-N-95; grit blast; remove grit blast debris from surface.

IMPORTANT! DO NOT TOUCH CLEAN SURFACE WITH 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.

THINNING

For spraying - Use Toluene as necessary to obtain the desired viscosity.

For dipping - Use Xylene in such proportions as to provide proper runoff characteristics.

APPLICATION

Sandstrom HI-T 650 should be sprayed, dipped or brushed to the desired film thickness (usually .0003 inches). If the coating is to be heat cured, allow the surface to dry **at least 30 minutes** before baking.

CURING

HI-T 650 features curing versatility to meet your production-line requirements. This material may be either air dried or baked. Air drying **HI-T 650** for 72 hours will produce a MINIMUM cure necessary for use. Complete curing beyond this point can be achieved during usage at the functional temperatures for which this material was designed (500°F - 750°F). If a preoperational cure is needed, baking is recommended. Baking 1 hour at 480°F produces MAXIMUM cure. However, several combinations of time and temperature can be used depending upon the degree of cure wanted. Baking at 250°F for 1/2 hour will produce a minimum cure equivalent to 3-5 days at room temperature. Higher temperatures and/or longer times will produce an increasingly better coating typified by better chemical resistance, a harder film, and longer wear life.

CLEANUP

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

REMOVAL OF SANDSTROM HI-T 650

To remove Sandstrom **HI-T 650**, immerse the coated part in MEK.

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

WARNINGS: Constant stirring is imperative for best results.

DANGER! Flammable - keep away from heat, sparks, and open flame.

USE WITH ADEQUATE VENTILATION.

Avoid prolonged breathing of vapors. If swallowed,

DO NOT INDUCE VOMITING.

CALL PHYSICIAN IMMEDIATELY!

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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 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 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. ©2/198 SANDSTROM PRODUCTS COMPANY 8/10/05