



814 Hillrose Avenue  
Dayton, OH 45404  
(937) 228-2191 (phone)  
(937) 228-5171 (fax)  
www.hohmanplating.com  
sales@hohmanplating.com

## SURF-KOTE® M-1284

### HIGH TEMPERATURE DRY FILM LUBRICANT

SL-147/03

#### **1. SCOPE**

Surf-Kote® M-1284 is a matrix bonded film lubricant containing molybdenum disulfide. It utilizes a new metallic bonding principle that a solid, dry film can be used for the lubrication of moving parts.

Surf-Kote® M-1284 will eliminate galling, seizing and cold welding while lubricating moving parts and assemblies that are under extreme pressures and temperatures, in contact with unusual atmospheres, or in inaccessible locations. It will also speed up parts assembly, resist fretting corrosion and facilitate the break in lubrication of engine parts and other components.

The cost of applying Surf-Kote® M-1284 will depend upon the area involved and the number of parts to be treated. Generally, spray equipment that is used for paint or lacquer can be adapted for the spraying of M-1284. A suitable oven temperature range of up to 350°F will also be required to cure the parts after spraying.

In most cases small parts such as cams, gears, pins, ect. can be processed at a cost comparable to that of painting while given these parts the additional operational advantages of low friction and high resistance to wear plus the ability to resist scoring, galling and fretting corrosion.

#### **2. MATERIAL**

Surf-Kote® M-1284 is the result of intensive research concerning all phases of solid lubricant compounding and application. During these investigations particular emphasis was placed on the bond and the determination of its fundamental characteristics. Consequently, this new material features and improved lubricant to metal bond.

Surf-Kote® M-1284 is composed of molybdenum disulfide and other material. These materials form a matrix type bond on the surface to which they are applied. By forming such a positive bond a solid, durable, lubricating film is formed that will provide a consistently low coefficient of friction over wide range of surface speeds, loads and temperatures.

Surf-Kote® M-1284 is produced under extremely close control to insure highly consistent performance. Chemical composition of raw material is continually checked and all compounding operations are carefully controlled.

Surf-Kote® M-1284 will provide a low coefficient of friction and prevent galling, seizing, and cold welding of moving parts operating under high bearing pressures, in excessive temperatures, and at high surface speeds. The maximum limits for each of these conditions are appreciably higher than those possible with conventional resin bonded lubricants. It is also excellent for applications involving high humidity and unusual atmospheric conditions.

Surf-Kote® M-1284 can speed up the assembly of components by reducing friction on fasteners and increasing their overall life by preventing fretting corrosion.

In many instances, Surf-Kote® M-1284 can be effective on surfaces that cannot be lubricated after assembly. It will generally provide satisfactory lubrication for the useful life of such parts and assemblies.

Break-in lubrication of engine parts such as valves, lifters and cylinders can also be facilitated by the use of this matrix bonded lubricant.

#### **3. PAINT PROPERTIES**

Type – Surf-Kote® M-1284 is heterogeneous compound marketed as a suspension and blended to a consistency ready for spraying.

Storage-Should be stored between 40° and 90°F.

DOT-Class 3, Group II

Density-0.95 grams per milliliter, (7.9 lbs./gal)

Coverage-600 to 1000 square feet per gallon for thickness between 0.0002 and 0.0006"

Curing Cycle-Bake at 250°F for two hours or 300 to 350°F for one hour. Maximum performance is achieved with the higher curing temperatures.

Shelf Life-Should not be stored for longer than one year. Each container is marked with a rejection date.

#### **4. APPLICATION**

The surface of each part should be pretreated before coating. Ferrous alloys generally should be given some type of phosphate treatment. Stainless alloys should be vapor blasted or chemically etched. Aluminum parts should be anodized or given a chromate conversion coating. (Consult Surf-Kote® Process Specifications SL-204 for additional information).

Surf-Kote® M-1284 may be applied by conventional spraying, dipping, or brushing. Spraying is usually the most convenient method for obtaining a uniform coating. (Consult Surf-Kote Process Specifications SL-204 for detailed instructions). The most efficient coatings are from 0.0003 to 0.0006 inch thick. This corresponds to approximately 6 to 8.5 mg of lubricant for each square inch of surface.

After coating, the article should be air dried for a minimum of three minutes before the curing operation. The coating is properly set by baking for one hour at 300 to 350°F. If the parts cannot be subjected to this temperature due to physical characteristics of the base metal, satisfactory results can be achieved by baking for two hours at 250°F.

#### **5. FILM PROPERTIES**

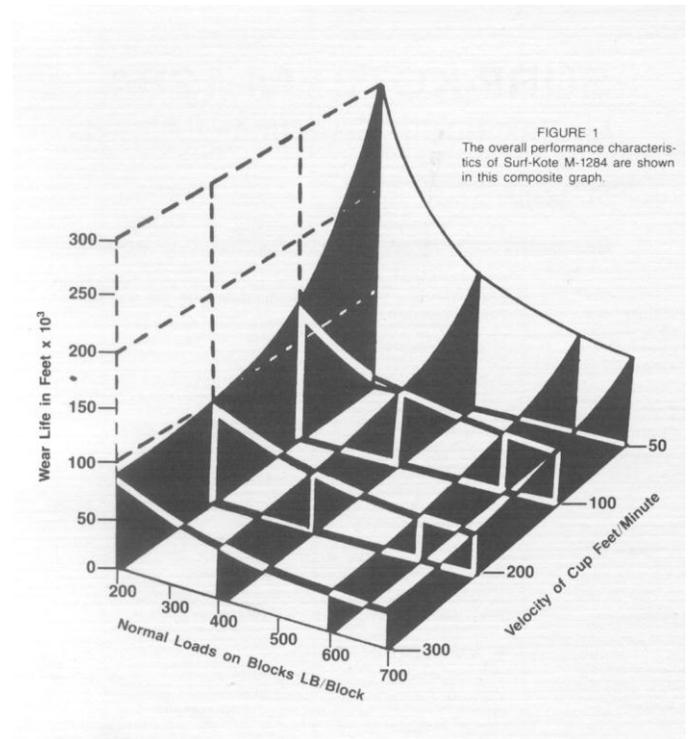
After proper application and processing, Surf-Kote® M-1284 will provide surface films far superior to those possible with the conventional solid lubricants that utilize a resin type bond.

The matrix bond of Surf-Kote® M-1284 is more resistant to heat than conventionally bonded lubricants and therefore functions better at faster surface speeds and under higher ambient temperatures. This heat stability is shown

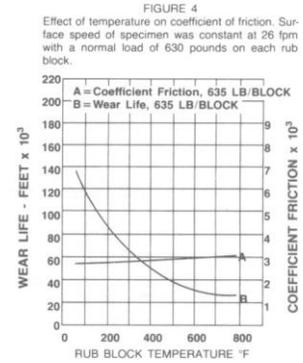
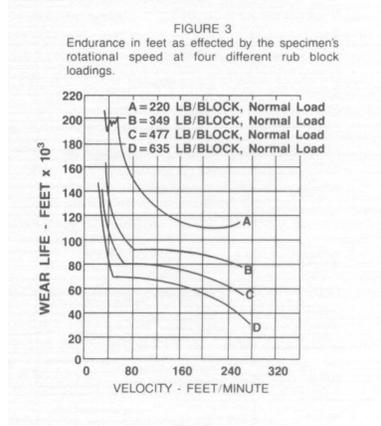
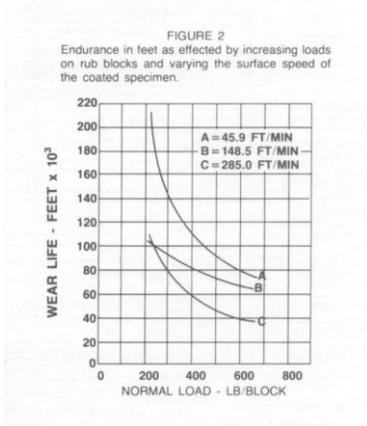
graphically in Figure 4. As the ambient temperatures increase the kinetic coefficient friction values remain stable.

The endurance life of Surf-Kote® M1284 is consistently greater than that of conventional resin bonded lubricants under the same conditions. This multiplies rapidly in the higher temperature range.

The overall characteristics of Surf-Kote® M-1284 were checked thoroughly on the Hohman Models A-3 and A-6 bench testers. Results of these investigations are graphically presented in Figures 1 through 4.



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Further tests were carried out on the modified McMillan tester using soft rub blocks, a rotation speed of 26 fpm, and a load of 630 pounds. Average endurance life was in excess of 80 hours.

**6. WARRANTY AND DISCLAIMER**

The manufacturer, Hohman Plating & Mfg., LLC, warrants only that the material will be manufactured to meet or exceed the minimum requirement of applicable specifications.

The information presented here in is to the best of our knowledge considered to be accurate and true based upon information believed to be reliable.

However, as the storage and processing technique outside of its own facilities or wholly owned subsidiaries and the conditions of use are beyond the control of the manufacturer, this information is given on the express condition and agreement that Hohman Plating & Mfg., LLC, will not be held liable to any entity for any claims, damages, or losses whatsoever resulting from the storage, application, or use if Surf-Kote® dry film resin bonded materials. Nothing herein shall be considered a recommendation to infringe on any patent still in effect.

Placement of an order is agreement that the sole remedy in case of defect shall be limited to replacement of the material.