



## WIRE ROPE DRESSING PRODUCTS FOR MARINE AND INDUSTRIAL USES

More than 45 years experience in lanolin (wool grease) technology, coupled with years of marine and industrial wire rope corrosion protection and lubrication expertise, enables the manufacturer to produce superior wire rope dressing products for internal and external corrosion protection and lubrication.

The numerous benefits designed to extend the life of ropes and to save money by using FLUID FILM products are as follows :

- just one type of grease base which is compatible with all types of dressing products for all shipboard and industry applications ;
- reduces water washout and spray off ;
- superior rust protection ;
- extends regreasing intervals ;
- performs at extreme temperatures.

The unique special purpose of the lanolin based FLUID FILM products with gratitude viscosity from oily to high consistence gels, with high oxidation and thermal stability provides good film formation at high and low speeds of running ropes as well as enhanced resistance to water spray off, evaporation and deposits. The combination of the lanolin base with EP compounds and other agents results in products also superior in resistance to water washout, high temperature separation, deterioration and structural breakdown under the high pressure of the wires which move and rub against each other, when the rope bends over sheaves and drums.

### **FLUID FILM Liquid A**

During fabrication, ropes receive preservation / lubrication. The kind and amount of the internal lubrication depends on the rope's size, type and use, if known. This in process treatment will provide the finished rope with ample protection for a reasonable time, if it is stored under the proper conditions. But when the rope is put into service, the internal preservation / lubrication will normally be less than needed for the useful life of the rope.

Because of this, periodic applications of FLUID FILM Liquid A are recommended.

The following are some of the characteristics that makes LIQUID A an excellent product for a service preservative / lubricant for wire ropes :

- it has a very light grade consistency and therefore it will completely penetrate before being wiped off or absorbed by surface dirt ;
- has excellent wetting characteristics, i.e. it will creep under moisture and form a film between the water and the steel ;
- it has high adhesive strength and will remain on the wires ;
- thickens with exposure to water or high humidity.  
Resists removal by wearing or washing ;
- is highly resistant to oxidation ;
- it does not dry or flake off in extreme cold ;

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- protects against internal friction and corrosion ;
- can be mixed into other FLUID FILM WIRE ROPE DRESSING PRODUCTS to increase the fluidity.

Before the application of FLUID FILM LIQUID A accumulations of dirt or other abrasive material should be removed from the rope. Cleaning can be accomplished with a stiff wire brush dipped in solvent, wiping with coarse rags, compressed air or live steam. Immediately after it is cleaned the rope should be coated with LIQUID A.

As a general rule, the most efficient and most economical means of applying LIQUID A in the field is by using some method or system that continuously applies the LIQUID A while the rope is in operation. Many techniques are used ; this includes dripping, pouring, swabbing, painting, or where circumstances dictate, an automatic system can be used to apply lubricants either by drip or pressure application.

In some cases, where the wire rope can be conveniently coiled (slings, pennants, lashing gear, etc.) it can be dipped in a trough or barrel partially filled with LIQUID A. The excess material should be allowed to drip, for example, by laying the coil on an expanded metal covered trough or barrel.

FLUID FILM Liq. A is available in 1 US gallon cans (3,79 ltr.), 20 ltr. pails or 55 US gallons drums (208 ltr.)

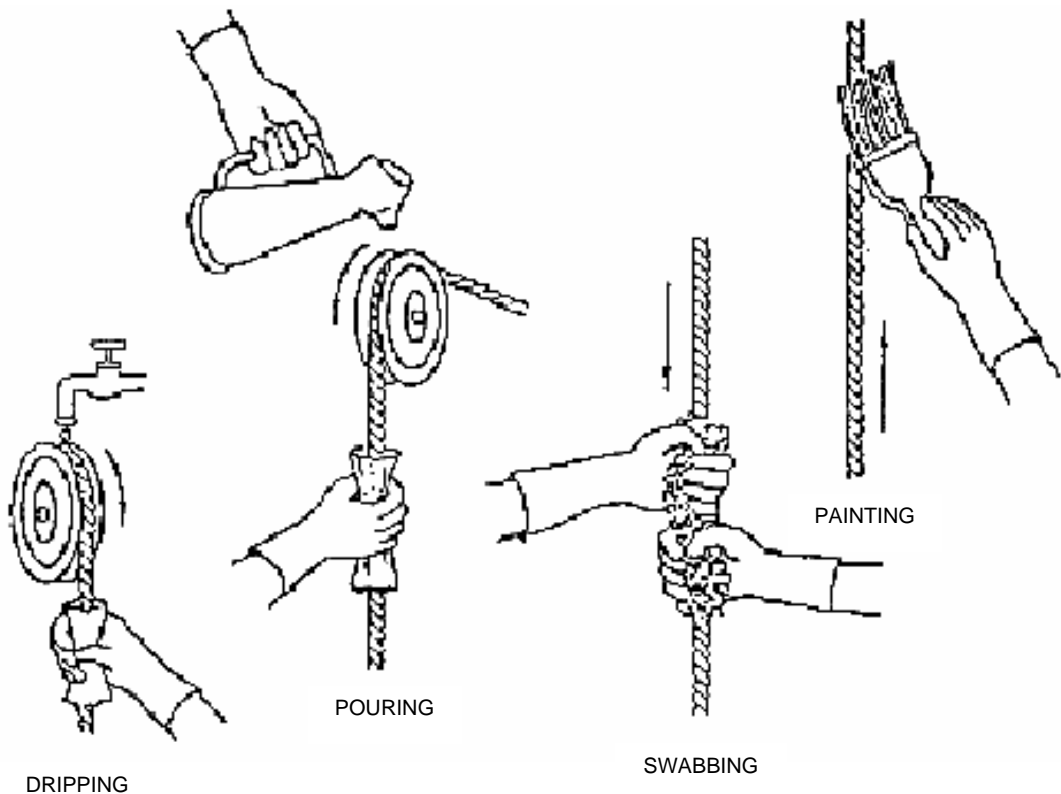


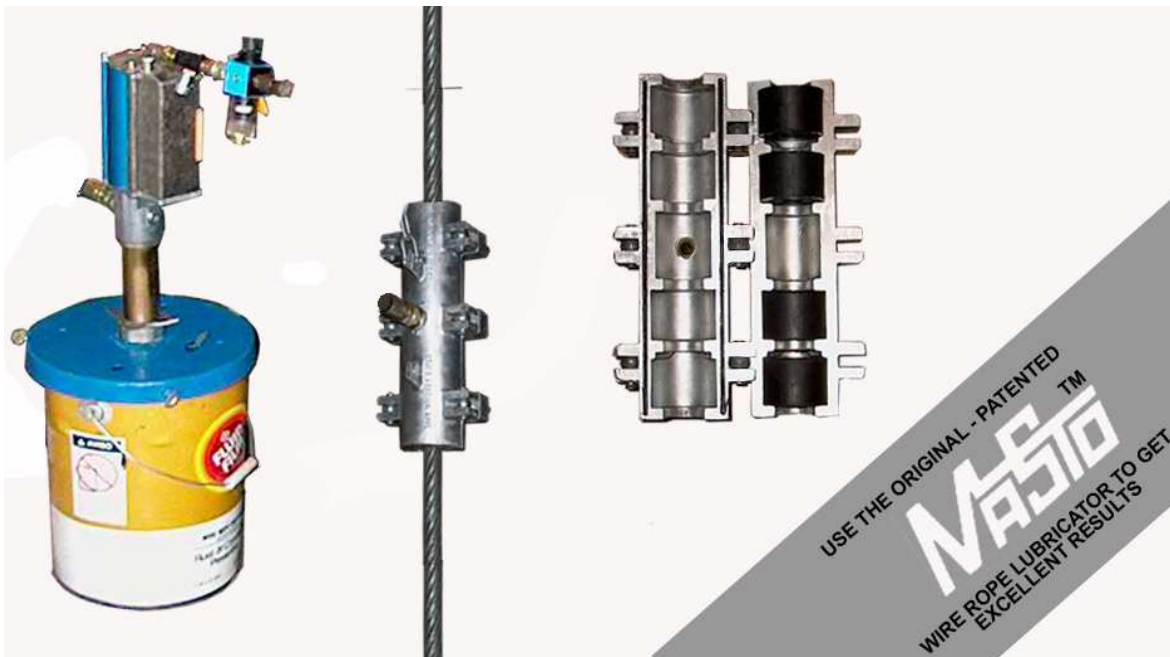
Figure 1. Methods of FLUID FILM LIQUID A application include dripping, pouring, swabbing and painting. When the rope is bent, the LIQ. A will penetrate much easier. Arrows indicate the direction of the rope's movement.

## **FLUID FILM WRL**

This is a semi-liquid product designed specifically for use in wire rope lubricators such as the MASTO (Fig.2), where the rope passes through a cylinder containing the lubricant under pressure.

One of the product's properties is a higher viscosity than LIQUID A, but with sufficient fluidity to penetrate the wires and strands to the rope's core while at the same time providing extreme pressure characteristics - due to ingredients that maintain a lubricating film between the metallic surface under very high pressures. Being thixotropic in nature, the product does not run or drip after use.

The product is available in 20 ltrs. pails.



The MASTO Wire Rope Lubricator is designed that in a single pass a wire rope can have :

- its outer surface scraped clean ;
- lubricant pressure-injected without spillage or wastage, to the very core of the rope thus removing the corrosion - creating moisture ;
- lubricant applied smoothly and uniformly to the surface of the rope.

All the above can be achieved with rope-travel speeds of up to 3.500 meters per hour, depending on diameter of rope, etc.

### **FLUID FILM WRO-EP (Wire Rope Lubricant - extreme pressure)**

This product was designed and manufactured to meet the rigid requirements of conformity with the specification MIL - G - 18458 B (SH) of US. Military. In addition to lubrication, this product provides excellent protection against corrosion. The superior adhesiveness of this product prevents water wash-off due to heavy rains and submersion in fresh or sea waters.

FLUID FILM WRO-EP as external lubrication acts to seal in the internal lubrication (Liquid A & WRL). It has also guards external wires against corrosion and reduces abrasion. This product does not dry or flake off in extreme cold.

It does not melt or run under heat. **It is not fusible.**

High tackiness minimises throw-off on high speed running rigging. Lower gel strength of this material makes it a recommended replacement for FLUID FILM WRN-EP where a thinner protective coat, but better penetration properties are required. Its components include additives against extreme pressure and for improvement of the gliding factor.

The U.S. Department of Defence has placed FLUID FILM WRO-EP on its "QUALIFIED PRODUCT LIST" and WRO-EP carries a National Stock Number 9150-00-530-6814.

The product is available in 208 ltr. drums and 35 pounds pails ( 15,9 kg = 17,6 ltr.).

### **FLUID FILM WRN-EP (WIRE ROPE DRESSING- Open gear lubricant, extreme pressure)**

**WRN-EP** is an approved conservation product for cables, wire ropes, drums, block sheaves and all other kind of standing and running rigging. Its components include additives against extreme pressure to improve the gliding character of the surface wires and strands. The penetration is so good that it infuses rust, covers the individual wires of the outside strands with a protecting coat, penetrates the internal lubrication of the rope. The conservation stays flexible in the temperature range of - 45°C up to + 96°C.

WRN-EP displaces moisture, can be applied on a solid rust surface. It does not dry out, but the film is extremely resistant against wash-off.

FLUID FILM Wire Rope Dressing may be applied using a leather or lambs wool glove. When a considerable length of wire is to be lubricated we recommend the use of the MASTO wire rope lubricator, which allows a continuous application of WRN-EP or WRO-EP, while the rope is in operation, giving a complete internal filling of the rope.

Another method is to form a cone of leather about 60 cm long and 15 cm in diameter at the base. Both base and apex are left open, and the wire rope passed through the apex, which is tightly lashed around the wire with marline for about six inches. FLUID FILM is applied to the wire with a rag; the leather cone is then dragged along the wire (or vice versa), so that the excess is scraped off into the cone, the remainder being well worked into the rope crevice. The amount of material left on the wire can be regulated by adjusting the marlin lashing. Too heavy an application not only wastes material but also can result in throw-off, particularly on running cable.

The product is available in 20 ltr. pails.

PROPERTIES	WIRE ROPE DRESSING FLUID FILM PRODUCTS			
	LIQUID A	WRL	WRN-EP	WRO-EP
DESCRIPTION	It combines lanolin with wetting agents and water displacing surfactants. The unique feature of LIQUID A is that for better penetration and lubrication it is formulated as an oil. It is one of the most effective products used for internal lubrication and corrosion protection of wire ropes both new and old.	The product has a higher viscosity than LIQUID A, but with sufficient fluidity to penetrate the wires and strands to the rope's core. It has also extreme pressure characteristics due to ingredients that maintain a lubricating film between the metallic surfaces under very high pressures.	Higher gel viscosity of this material makes it recommendable for use on wire ropes, where high resistance to water abrasion and long term corrosion protection is required. WRN-EP is specially used for external protection to seal in the internal lubrication. It has extreme pressure strength. The material is not fusible and can be used from - 45 °C up to 95 °C.	The product has been specially designed to the requirements of the U.S. Navy. It conforms to MIL – G – 18458 B (SH) Specification and has the NATO Stock No. 9150-00-530-6814. Lower gel viscosity of this material makes it a recommended replacement for WRN-EP, where a thinner protective coat but better penetration properties are required. The material is not fusible and can be used from - 45 °C up to 110 °C.
Specific Gravity g/cm <sup>3</sup>	0,905 - 0,915	0,91 - 0,92	0,93 - 0,94	0,91 – 0,92
Flash Point °C ASTM D 92	157	160	180	256
Viscosity	30 - 45 sec. Ford No. 4 at 21 °C	3200-4600 poise * Brookfield (HBF)	290**	320 **
Dropping point °C	-	-	95***	115***
Method of applying	Dip or brush, sheepskin or MASTO wire rope lubricator etc.	Applying by hand with leather gloves, brush, rag, wire rope lubricator MASTO etc.	Applying by hand with leather gloves, brush, rag, leather cone, wire rope lubricator (MASTO)	
Method of removal	Seldom necessary, but if, mechanically using rags and consecutively with solvents or alkaline washing products.			
Description of the protective / lubrication film	light, oily film	transparent, medium viscous, oily non polymerising film	Grey black, transparent, high-viscous, non polymerising film	Greenish black, transparent, high-viscous non polymerising film
Solids by weight %	100	100	100	100
Film thickness μm	40	200	> 800	> 1500
<b>Corrosion resistant tests</b>				
Condensation chamber ASTM D 1748	650	3250	> 10000	>5000
Salt Spray test Mil-R-21006 (ships)	150	750	> 5000	> 3000

\* Condition of testing : Brookfield (HBF) - Cone 5 at 2 revolutions per minute - measuring temperature : 21 °C

\*\* The consistency of the product was measured acc. DIN 51804 at 25 °C as walk penetration. ACC. DIN 51818 WRN-EP and WRO-EP belongs in respect to consistency to the NLGI-class 5 and 6.

\*\*\* The dropping point describes the temperature when under testing conditions ACC. DIN 81801 the first drop of the tested product dropped down from the testing nipple.



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND

WASHINGTON DC 20362

4123  
OPR: 55Z312  
Ser 55Z3

Eureka Chemical Co.  
ATTN : D.T. Stanton  
234 Lawrence Ave.  
S. San Francisco, CA 94083

24 JUN 1988

Gentlemen :

We are in receipt of reports from Mare Island Naval Shipyard and the Naval Environmental Health Center, enclosures (1) and (2) , covering the results of the qualification testing and toxicological evaluation conducted on your "FLUID FILM, WRO-EP" brand grease in accordance with MIL-G-18458B (SH) and Amendment - 4.

The results of the subject reports were determined to be satisfactory and in conformance with the requirements of MIL-G-18458B (SH) and Amendment-4. Therefore, qualification approval is hereby granted to your plant located at 234 Lawrence Avenue, S. San Francisco, California in accordance with MIL-G-18458B (SH) and Amendment-4 and subject to the conditions printed on the reverse side of this page.

Your product will appear on QPL-18458 as follows

GOUVERNMENT DESIGNATION	MANUFACTURES'S DESIGNATION	TEST OR QUALIFICATION REFERENCE	MANUFACTURE'S NAME AND ADDRESS
	FLUID FILM; WRO-EP	MARE ISLAND Navshipyd Rpt. 4406-88	Eureka Chemical, Company 234 Lawrence Ave. S. San Francisco, CA. 94083 Plant: Same Address

Sincerely,

DAVID W. NELSON  
Director, DOD Standardization  
Program and Documents Division  
By directon of the Commander

- Encl:
- (1) MARE ISLAND NAVSHIP Rpt. # 4406-88
- (2) NEHC Rpt. dtd 3/21/88