

FLUID FILM WRO-EP Details

National Stock

Number: 9150-00-530-6814

5 gal/Pail:

Description:

Permanently soft gel. Conforms to MIL-PRF-18458 C. Submarine Material Usage Category-Limited-100°F Maximum Temperature.

Color:

Greenish black

General Usage:

WRO-EP is recommended for the general maintenance of wire rope. It provides corrosion protection and lubrication for standing and running rigging, drag lines and bridge cable. The high tackiness of WRO-EP minimizes throw-off on higher speed running rigging and provides higher resistance to water abrasion and washout when used in tidal areas. Extreme pressure properties provide excellent lubrication for both wire rope and open gear applications.

Rusty wire rope and cable should be first treated with FLUID FILM Liquid A to attain maximum penetration.

Where a low viscosity material is desired for a slushing compound, the use of FLUID FILM Gel-WRL is recommended. This product also has extreme pressure properties. See Technical Bulletin #206.2.

Application:

WRO-EP Wire Rope Lubricant may be applied using a leather or lambs wool glove. When a considerable length of wire is to be coated, it may be advantageous to apply as follows: Form a cone of leather, about two feet long and six inches in diameter at the base. Both base and apex are left open with the wire rope passing through the apex. The apex is tightly lashed around the wire with marlin for about six inches. WRO-EP is applied to the wire with a rag, then the leather cone is 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 crevices. 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 in running cable.

Typical Properties

PROPERTY	VALUE	ASTM	IP
NLGI Grade:	1-2	D-217	

Specific Gravity:	0.928-0.938		
Dropping Point:	235°	D-566	132/65
Flash Point:	490°	D-92	36/67
Effect on Rubber:	None on neoprene and buna-n. May cause swelling on non oil-resistant rubber goods.		
VOC	Less than 0.1% (CARB 310)		

Comparison With MIL-PRF-18458 C

PROPERTY	Typical Value	Specification
Worked Penetration: (ASTM D-217)	290	200-350
Oil Separation:	1.6%	10% Max.
Lead Wear Index: (ASTM D-2596)	46.7	30 Min.
Accelerated Weathering: (ASTM G-23)	pass	pass
Salt Spray 20%: (240 hours)	pass	pass
Low Temperature Flexibility: (20°F)	pass	pass
Volatile Matter:	1.7%	2% Max.
Adhesiveness:	99.8%	95% Min.

* Packaged in 39 pound pails and 441 pound drums.

All components of **FLUID FILM® WRO-EP** are listed on the TSCA Inventory.

KEEP OUT OF REACH OF CHILDREN.

This document is subject to revision without notice.



Preventive Maintenance It Is About Money



Inside
Rudders

Proven cost savings with the only product-line used
from nuclear submarines to the Space Shuttle. Why?
One word - Quality.



Tugboat ✿ Workboat ✿ Barge ✿ Dredge ✿ Fishing Vessel ✿ Floating Drydocks

- Anchor Chains—Lockers—Windlass
- Wire—Rope—Winches
- Cranes—Hoists—Rails
- Spoons—Stabilizers
- Hawsers—Hatch Coamings
- Offshore Platform Mach. & Tools
- Equipment—Vehicles—On—Deck Cargo
- Container Guides
- Elevator Guide Rails
- Open Gears
- Cables & Electric Connectors
- Ballast Tanks
- Voids—Skegs
- Bilges—Keels
- Stern Tubes
- Pontoons
- Caissons
- Undersea Equipment
- Hatch Covers
- Water Tight Door Dogs
- Locks & Hinges
- Grey Water Tanks



NOTHING LASTS LONGER
Environmentally Friendlier
No Solvents

EUREKA CHEMICAL COMPANY

234 Lawrence Avenue, South San Francisco, California 94080
650-761-3536 PHONE 650-589-1943 FAX
www.eurekafluidfilm.com

The only product-line used from nuclear submarines to the Space Shuttle.

**Available in liquid, gel, and grease forms. ✿ Penetrates to base metal and cable core.
Displaces rust. Where surfaces are heavily corroded acts as descaler.**

National stock numbers listed where applicable to type of FLUID FILM and container size.

Tank Coatings, Rudder, and Void Preservatives, Appendage Protection

FLUID FILM Liquid A

Applied by spray, flotation, fill and drain, or brush. Use as a descaler over heavily corroded surfaces. Up to 2 years service.

NSN-8030-01-387-1051 5-gal. pail (20 liter)
NSN-8030-01-386-3877 1-gal. 4/case

FLUID FILM Liquid AR (semi-liquid)

Applied by spray or brush over moderately corroded surfaces after removal of thick rust scale. Up to 3-5 years service.

NA 5-gal. pail (20 liter)
NSN-8030-01-381-7311 1-gal. 4/case

FLUID FILM Gel BW

Applied by spray or brush over rusted surfaces. Long term protection. Up to 3-10 years service; submersibles to 20 years.

NA 5-gal. pail (20 liter)

FLUID FILM Gel BEW

Applied to external appendages and components by brush.

NSN-8030-01-381-3160 5-gal. pail (20 liter)

Wire Rope Dressings

FLUID FILM Liquid A

Applied by lubricator, glove, or dipping. Core penetration without lubricator.

NSN-8030-01-387-1051 5-gal. pail (20 liter)
NSN-8030-01-386-3877 1-gal. 4/case

FLUID FILM WRN-EP (extreme pressure)

Commercial dressing applied by lubricator or glove.

NA 5-gal. pail (20 liter)

FLUID FILM WRO-EP (extreme pressure)

Government specification Mil-G018458 (SH) applied by lubricator or glove.

NSN-9159-00-530-6814 35 lb. pail (15.5 kg)

General Maintenance Aerosol/Non-Aerosol

FLUID FILM AS (aerosol)

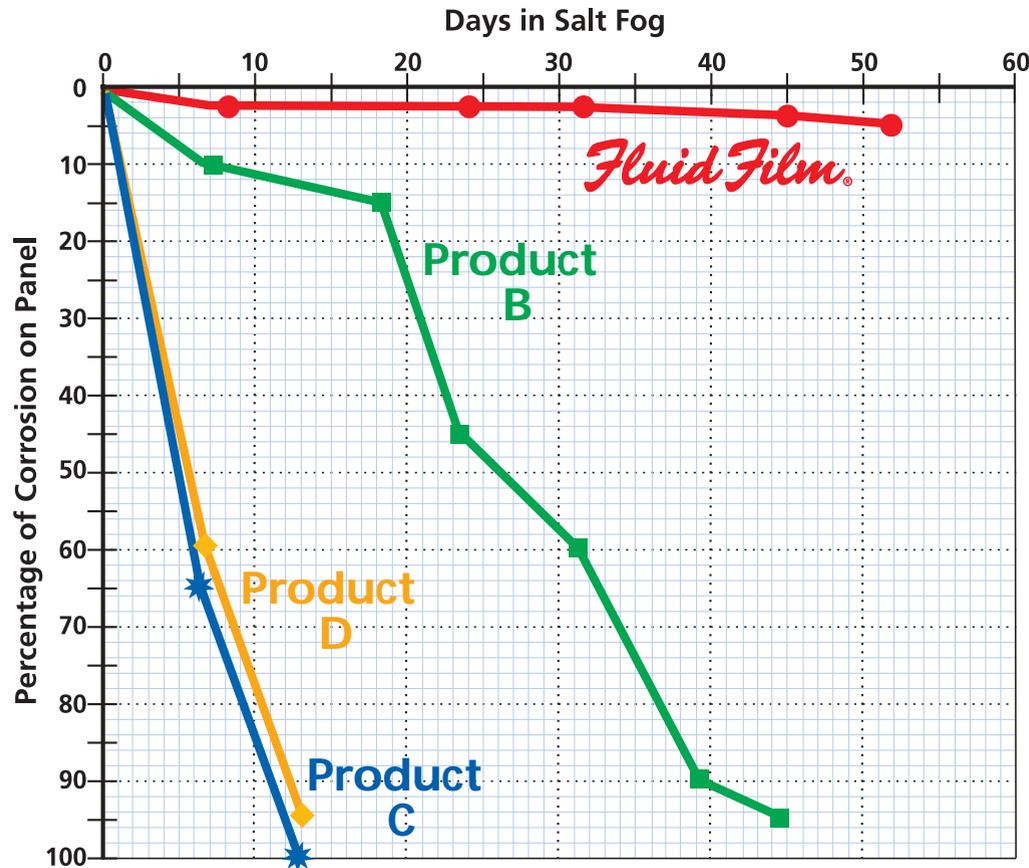
NSN-8030-01-387-1131 11-3/4 oz. 12/case

FLUID FILM NAS (non-aerosol)

NSN-8030-01-381-6357 12 oz. 12/case
NSN-8030-01-386-3871 1-gal. 4/case
NSN-8030-01-387-1070 5-gal. pail (20 liter)

52-Day Performance Comparison

Fluid Film vs. Leading Competitive Products



Testing was performed in the laboratory of Eureka Chemical Company according to procedures similar to ASTM methods for measuring corrosion.

For the test, each product was sprayed onto eight, 3x6" bare steel test panels. The panels were then suspended vertically for 24 hours to simulate end use conditions.

After 24 hours, all products except *Fluid Film* had sagged toward the bottom edge of the panels, resulting in increased

film thickness at the bottom and less thickness above.

All of the panels were then suspended within a closed cabinet with a salt fog atmosphere of 5% salt concentration. The panels were removed from the test chamber when each reached approximately 95% surface corrosion.

Two product panels reached 95% corrosion within 14 days, a third in 45 days. After 52 days (1248 hours) *Fluid Film* had reached a corrosion percentage of only 5%.



24 hours

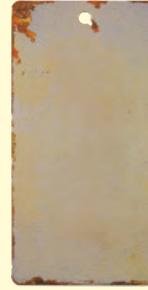
168 hours - 7 Days

576 hours - 24 Days

1080 hours - 45 Days

1248 hours - 52 Days

Fluid Film



Product B

24 hours



168 hours - 7 Days



576 hours - 24 Days



1080 hours - 45 Days



Product C

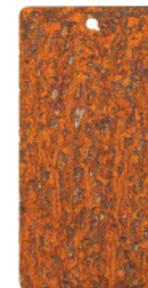
24 hours



168 hours - 7 Days



336 hours - 14 Days



Product D

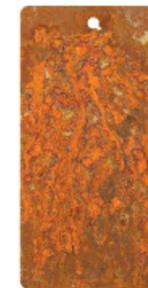
24 hours



168 hours - 7 Days



336 hours - 14 Days



This comparison of corrosion protection demonstrates the long-term corrosion control economy of *Fluid Film*. In addition, the surface adherence of its woolwax-based formula is self healing in cases of scoring or similar damage and it remains soft and flexible, does not wash away or crack. *Fluid Film* can be removed easily from most materials when required.

Fluid Film is non-toxic and non-hazardous — important considerations in workplace environment and safety. Once applied, Fluid Film's flash point is a high 405 F, compared to typical 125 F for solvent-based products.

While most products of its kind contain between seventy and ninety percent solvent, *Fluid Film* contains none, except for the propellant in its aerosol cans. This means that only ten to thirty percent of competing products are usable corrosion control material. The rest evaporates, contaminating the atmosphere and useless to the user.

For technical information on the various forms of *Fluid Film*, visit www.eurekafluidfilm.com.

Fluid Film

NOTHING PROTECTS LONGER



TECHNICAL BULLETIN

Effective January 2005

PRODUCT DATA: #202.2
SUBJECT: WELDING ON FLUID FILM®
COATED SURFACES

PREPARATION:

Under all circumstances, verify that tank interior is gas free.

The determination of the tank as gas-free is necessary, as mud and sludge in the tank bottom may produce methane and ethane gas by bacterial action. Fuel and/or solvent cleaners may have been inadvertently introduced, creating an explosive atmosphere within the air space of the tank. This should be determined with a standard calibrated explosimeter.

Particular attention should be paid to removing any pockets of flammable gas which may accumulate in "dead-air" spaces beneath the overhead, especially if work is to be performed near the area.

Make certain that no combustible materials, such as wooden staging or rags, are in areas where hot slag could ignite them.

While the usual precautionary measures should be followed in connection with any welding or burning, it is recommended that any tanks on which hot work is to be performed should be completely ballasted, at least twice, with clean sea water.

FLUID FILM® Liquid A and Liquid AR have a Flash Point of 315°F, COC, and FLUID FILM® Gel B, 405°F, COC.

When welding, cutting or burning of steel whose surface, front or back, is coated with FLUID FILM®, the coating should be wiped with rags or scraped with a wooden tool for a distance of four feet (1.25 meters) from the point or line of hot work. A squeegee with a flexible rubber or plastic wiper blade is suitable and more rapid for preparation of larger areas.

At times it may be desirable to remove the material for a distance greater than four feet, to provide additional working area. When extensive hot work is to be performed on the tank overhead, it is advised that the area below be covered with a layer of clean water to quench any falling hot slag.

If burning of welding is to be performed on a vertical surface, heat conduction may cause the coating above to melt and flow into the path of the flame. If this occurs, work should immediately be stopped, and the melted material cleared, before resuming.

Maintain proper fire watch.

When cutting a section, such as a disk, out of a metal plate coated on the back side with FLUID FILM®, a pilot hole should be drilled on the perimeter of the cut to minimize time requirements for penetration by the torch. Drilling several holes will also allow for the venting of any flammable gas trapped directly under the overhead.

If the section to be removed is not too large, fashion a handle of a welding rod and tack weld it to the plate, to prevent the section from falling into the coated tank.

AFTER COMPLETION:

When hot work is completed, new welds should be chipped of slag, wire brushed, and washed with a wet rag, to remove salts from welding rod fluxes which interfere with adhesion.

FLUID FILM® should be replaced on the dry steel by brush application or other suitable method. It is recommended that FLUID FILM® Gel BW be used for this purpose.

SAFETY REGULATIONS:

The following excerpts are taken from OSHA safety regulations:

29 CFR, Section 1915.23 (b) (2)

“Flame or heat shall not be used to remove soft and greasy preservation coatings.”

29 CFR, Section 1915.32

(f) “When welding, cutting or heating is performed on tank shells, decks, overheads and bulkheads, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent compartment, the same precautions shall be taken on the opposite side on which the welding is being performed.”

(g) “The gas supply of the torch shall be positively shut off at some point outside the confined space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch hour.

29 CFR, Section 1915.33 (d)

“Before welding, cutting or heating is commenced in enclosed spaces on metals covered by soft and greasy preservatives, the following precautions shall be taken:

1. A competent person shall test the atmosphere in the space to ensure that it does not contain explosive vapors.....
2. The preservative coatings shall be removed for sufficient distance from the area to be heated to ensure that the temperature of the unstripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heated area may be used to limit the size of the area required to be cleaned.”

Keep out of reach of children.

This document is subject to revision without notice.

FLUID FILM® and PERMA FILM® are trademarks of Eureka Chemical Company

Eureka Chemical Company → 234 Lawrence Ave. → P.O. Box 2205 → So. San Francisco, CA 94080
Tel (650) 761-3536 or 1-888-Eureka2 Fax (650) 589-1943 www.eurekafluidfilm.com
East Coast Division: Newport News, VA Tel (757) 873-1355 or 1-888-Eureka3 Fax (757) 873-7627