

## FLUID FILM Aerosol & Non-Aerosol Pump

FLUID FILM is a penetrant and lubricant also used for corrosion prevention. It is a non-toxic, long lasting, thixotropic liquid that has been used for over fifty years in the highly corrosive marine environment of ships and offshore drilling rigs. More recently they have been introduced and successfully utilized in the aerospace, aircraft and automobile industries as well as for home maintenance. Facilities where they are used include the following: government facilities, commercial fishing concerns, gas companies, agriculture, salt plants, municipal plants, power plants, manufacturing plants and pulp and paper mills.

FLUID FILM is formulated from specially processed wool-wax, highly refined petroleum oils and selected agents to provide corrosion control, penetration, metal wetting and water displacement. The long lasting product contains no solvents, will not dry out and will penetrate to the base of all metals, providing corrosion protection from both natural and industrial atmospheres. Heavily corroded and/or frozen parts such as nuts, bolts, shafts, etc. that would normally be damaged during maintenance, can be salvaged by applying FLUID FILM.

### National Stock Number

11 3/4 OZ, 12/CTN Aerosol Spray	<b>8030-01-387-1131</b>
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12 oz, 12/CTN Non-Aerosol	<b>8030-01-381-6357</b>
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1 gal, 4/CTN Non-Aerosol	<b>8030-01-386-3871</b>
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5 gal Pail Non-Aerosol	<b>8030-01-387-1070</b>
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Environmentally Friendlier	<i>AS (Less aerosol propellant) solvent free and non-toxic. NAS Solvent free and non-toxic. Container is reusable and recyclable. <a href="#">Read More about FLUID FILM and the Environment.</a></i>
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### Typical Properties

Unless designated otherwise, the following data refers to FLUID FILM NAS or FLUID FILM AS after the propellant has evaporated away following spray application.

<b>Appearance:</b>	Clear, straw colored liquid.
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### Viscosity:

Brookfield	#2	4.5 - 6.5
	Spindle	reading
HBF, 70 °		(7,200 -
F	at 2	10,400

RPM cps)

**Flash Point, Bulk**

**Liquid:**

ASTM-92 Cleveland  
Open Cup

405°F minimum.

**Non-Volatile:**

89% minimum (3 hours @ 220°F).

**VOC. :**

CARB 310

Less than 1%

**Specific**

**Conductivity:**

Less than  $10^{-9}$  ohm/cm @ 1 mHz.

**Specific Gravity:**

0.875 - 0.885 (less propellant).

**Effect on Rubber:**

ASTM D-471 @ ±  
158°F 70 hours

None on neoprene and buna-n.  
May cause swelling on non oil-  
resistant rubber goods.

**Effect on Paint:**

None on most painted surfaces.

**Effect on Aluminum:**

No pitting.

**Extreme Pressure:**

ASTM D-2782  
Timken Method

Fail load - 15 pounds.

**Wear Prevention —  
Characteristics:**

ASTM D-2266 Four  
Ball Method

40 Kg., 1200 RPM for 1 hour @  
167°F. Results: Scar diameter of  
0.49mm.

**Repaintability:**

Contain no silicones. It is  
recommended that surfaces treated  
with **FLUID FILM® AS or NAS**  
be hot water or steam detergent  
washed (120°F), whichever is  
most effective.

**Corrosion**

**Protection:**

ASTM D-1735

Passes 50 days.

Humidity Cabinet

**ASTM D-1748:**

Humidity Cabinet

Passes 30 days.

**MIL-C-16173**

Corrosion Requirement

Grade 2 -Soft Films. Meets & exceeds salt spray requirements.

**Water Replacement:**

Displaces water from all metal surfaces (MIL-C-23411, Paragraph 3.6).

**Toxicity:**

Non-toxic, LD-50 greater than 3 grams per kilogram. Non-irritating skin response. Very slight irritation to the eyes. (Toxicity tests performed according to standard methods by an independent laboratory).

**Warning:**

**AS:** Extremely flammable. Contents under pressure. Do not puncture, incinerate or store above 120°F. Keep from open flame.

**NAS:** Combustible. Do not incinerate.

**Spray Nozzle  
Cleaning:**

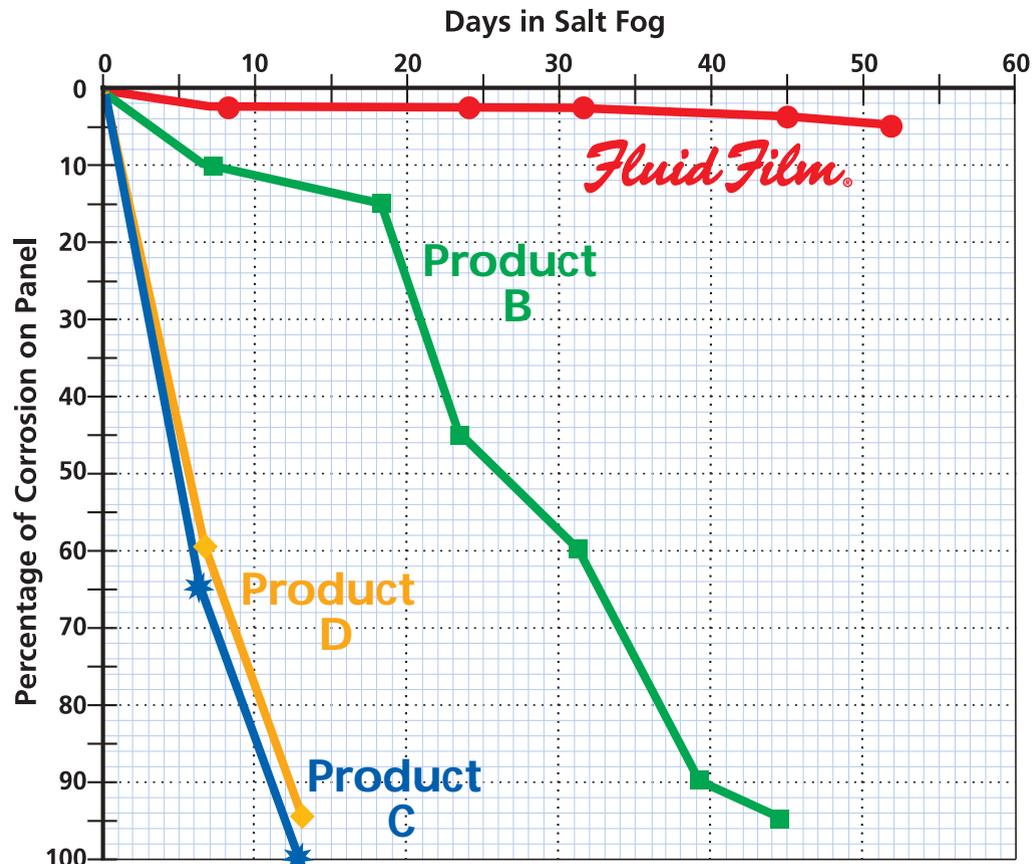
Turn can upside down, point in a safe direction and spray until only propellant escapes. If spray button becomes clogged during use, pull it from the can and clean it with a fine wire or needle. Replace the button with a gentle twisting motion, keeping it pointed in a safe direction. Do not stick pins or other objects into nozzle tube.

All components of **FLUID FILM® Aerosol and non-aerosol** are listed on the TSCA Inventory.



# 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

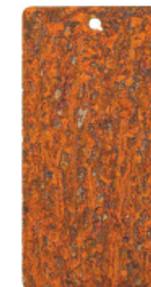
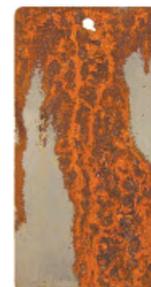


Product C

24 hours

168 hours - 7 Days

336 hours - 14 Days

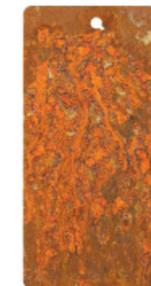


Product D

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](http://www.eurekafluidfilm.com).

*Fluid Film*

NOTHING PROTECTS LONGER



# TECHNICAL BULLETIN

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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.

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