

FLUID FILM Liquid A

Description: Oily amber transparent liquid. Lanolin-based coating. Solvent free. Non-toxic. Will not evaporate. Reacts with moisture to form a soft gelatinous barrier. This mixture is chemically combined and thus is unavailable to cause corrosion.

Anti-corrosive coating, lubricant and penetrant for all metals. Provides protection against attack by moisture and salt solutions. May be applied to soften and remove heavy rust. Excellent for storage or shipment of metals and equipment. Used in the maintenance of aircraft, heavy machinery, marine equipment (such as rudders, voids, inaccessible areas), mining equipment, farm machinery and automobiles. Also used in refineries, salt plants, power plants, and gas companies.

General Usage:

Where fluid (soft coating) barrier is not objectionable: LIQUID A will protect liquid fertilizer tanks, bulk storage tanks, hoppers, spreaders, collection tanks, sprayers, liquid applicators, combines, mixing plant machinery, sorting machinery, conveyors, elevators and vehicles. LIQUID A will protect the interior of pumps by pouring into intake and turning pump over once or twice to make sure liquid is coating. LIQUID A stops the rust, inhibits the corrosive properties of fertilizers, lubricates all moving parts and displaces moisture.

To coat small tanks with limited access, pour LIQUID A into the access hole. The estimated coverage rate is as follows: 1.22 liter / m² or 3 gallons / 100ft². Roll tank to cover all surfaces. Fill tank slowly with water and drain until coating has gelled and placed itself on tank surfaces. May require 2-3 cycles.

If conditions dictate a heavier coating or lubricant, refer to other Eureka Chemical product bulletins or Eureka Chemical Company.

Application Methods:

Can be applied under ambient conditions by airless spray, roller, brush, dip, slush, floatation.

Particulars for Wire-Rope:

Used as coating and lubricant. Will penetrate to the core, displacing moisture. For long term protection; FLUID FILM wire-rope dressings, WRO-EP MIL-PRF-18458 C or WRN-EP are applied after FLUID FILM LIQUID A is employed as a penetrant. This procedure eliminates the use of a mechanical lubricator for core penetration.

Particulars for [Marine](#):

FLUID FILM LIQUID A meets and exceeds the corrosion performance requirements of MIL-C-16173 Class 2 Grade 3 while containing no solvents. LIQUID A remains active, penetrating to the base metal stopping corrosion. With LIQUID A there is no pinholing since it is self-healing, as opposed to a dormant passive barrier. LIQUID A can be applied by spraying or brushing to a thickness of 2 to 3 mils. Coverage rate is 1600 m² / 208 liter or 17,000ft² / 55 gal. drum.

**Surface
Preparation:**

No sandblasting required. Remove flaking rust and peeling paint. Break blisters larger than 25 mm (one inch). Remove all standing water. Clean up all debris and silt.

If long term protection is not required and time does not permit surface preparation, application may be made over existing rust and seals. LIQUID A will soften this rust and it may fall, leaving surface unprotected. Therefore surface inspection may reveal the necessity for touch-up.

Floatation application of LIQUID A can be accomplished with results that will reflect the degree of care taken to achieve proper application.

To apply a uniform film of LIQUID A, it is imperative to coat all metal surfaces with LIQUID A before its exposure to water and subsequent gelation. Indiscriminate dumping of LIQUID A into water with any mixing action accelerates the gelation of the product. This induced premature gelation is adverse to proper surface application and can lead to LIQUID A wastage.

Floatation:

It is preferred to hose at least 25% of the Liquid A onto the tank overhead, the upper vertical surfaces and the tank bottom. Positive placement will make for better coverage and distribution. Apply the remaining LIQUID A to tank assuring as much distribution as practical, especially in large tanks. Add ballast water slowly, raising the level of water as high as practical without causing overflow. Deballast slowly stopping short of the suction bell.

When the application is made by pouring or pumping the coating into the tank, apply approximately one third of the required material initially to the tank bottom, followed by ballasting to one-half of tank level. Add another one-third of material to the tank then deballast to above suction bell; re-ballast to two-thirds tank level, add the remainder of material and continue ballasting, raising level of water as high as practical without causing overflow. Repeat ballast and deballasting cycles until all material is placed on steel. 2 - 4 cycles should be sufficient. Coverage rate for light and moderately rusted tanks is approximately 510 m² / 208 liter or 5,500 ft² / 55 gal. Drum. For heavy scale deposits the calculated coverage should be 204 m² / 2,200 ft² per drum.

Please be advised the floatation method cannot insure 100% coverage of all surfaces. We recommend direct application whenever possible.

**Descaling
Procedure:**

LIQUID A can be used as a descaler to soften heavy rust and scale. After 6 -12 months, tanks can be readily scraped and mucked out, then LIQUID A can be re-applied, with approximately 1 to 2 years service as described under "Particulars For Marine" above. A longer term coating such as LIQUID AR or GEL BW may be used.

Typical Properties

Specific Gravity:	0.903 - 0.913 (77°F)
Viscosity: Ford Cup No. 4	30 to 45 seconds, 70°F
Flash Point: ASTM-D92 Cleveland Open Cup	157°C (315°F)
VOC: CARB 310	<1%
Specific Conductivity:	Less than 10 ⁹ mho/cm @ 1M Hz
Effect on Rubber: ASTM D-471 @ ± 158°F 70 hours	None on neopren and buna-n. May cause swelling on non oil-resistant rubber goods.
Effect on Aluminum:	No pitting.
Effect on Copper, Brass:	No staining.
Toxicity (Tests performed by outside laboratory using standard methods)	<u>Oral</u> : LD50 greater than 3 g/kilogram. <u>Skin Irritation</u> : Non-irritating response. Albino rabbits - 24 hr contact of LIQUID A on intact and abraded skin. <u>Eye Irritation</u> : Very slight response. LIQUID A inserted in rabbit's eyes. On immediate washout, slight response after 24 hours. None after 48 hours. With no washout, slight response after 24 hours. None after 72 hours.
Dielectric Strength: ASTM-D-877	32.0

Note 1: When welding in tanks coated with LIQUID A, wipe material back a distance of 1.5 meters (5 feet) from where hot work is to be performed and from the deck area beneath the hot work. See Technical Bulletin No. 202.2.

Note 2: Since LIQUID A forms a gel in the presence of water, keep all containers closed tightly when not in use. If LIQUID A thickens in the container, agitation will temporarily return it to a more liquid condition. Thickening does not impair its effectiveness in any way.

Note 3: LIQUID A is not recommended for use in tanks carrying petroleum solvents, acids, ammonia or ammonium hydroxide. Solution of ammonium salts may cause slow degradation of the coating.

Note 4: Shelf life - indefinite.

All components of **FLUID FILM® LIQUID A** are listed on the TSCA Inventory.

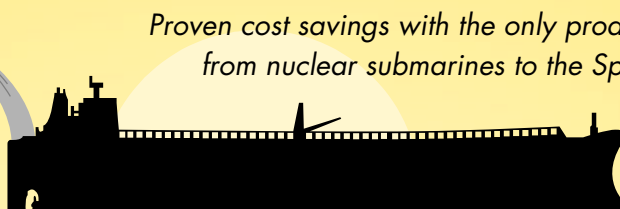
KEEP OUT OF REACH OF CHILDREN.

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Preventive Maintenance It Is About Money



**Inside
Rudders**



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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)
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FLUID FILM Gel BEW

Applied to external appendages and components by brush.

NSN-8030-01-381-3160	5-gal. pail (20 liter)
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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)
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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)
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General Maintenance Aerosol/Non-Aerosol

FLUID FILM AS (aerosol)

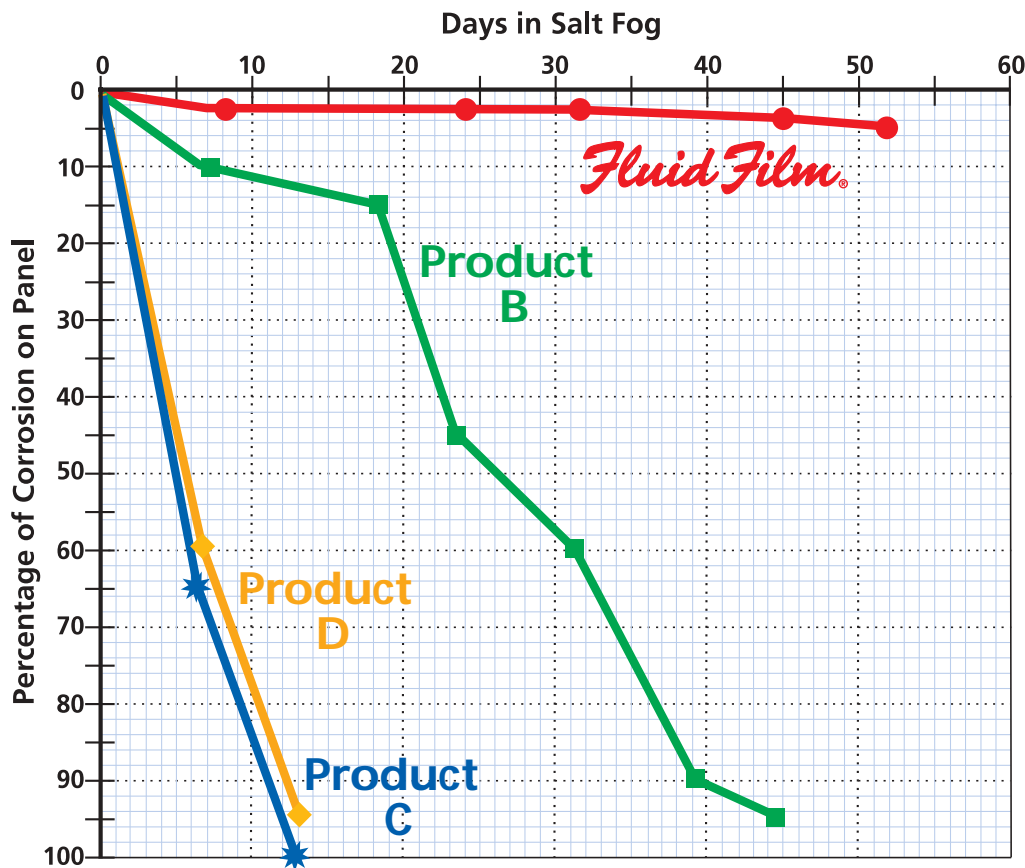
NSN-8030-01-387-1131	11-3/4 oz. 12/case
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FLUID FILM NAS (non-aerosol)

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.

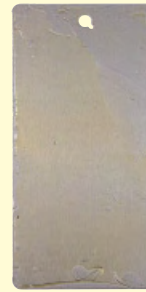
All of the panels were then suspended within a closed cabinet with a salt fog atmosphere of 5% salt concentration. The panels were removed from the test chamber when each reached approximately 95% surface corrosion.

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%.



Fluid Film.

24 hours



168 hours - 7 Days



576 hours - 24 Days



1080 hours - 45 Days



1248 hours - 52 Days



Product B

24 hours



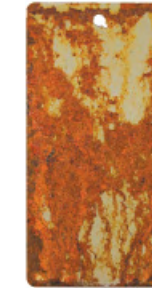
168 hours - 7 Days



576 hours - 24 Days

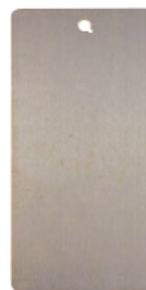


1080 hours - 45 Days

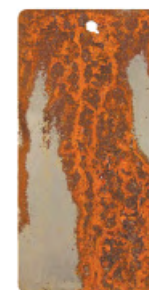


Product C

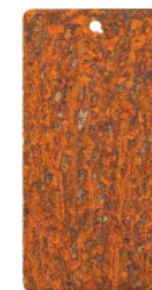
24 hours



168 hours - 7 Days

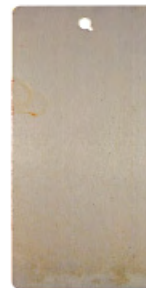


336 hours - 14 Days



Product D

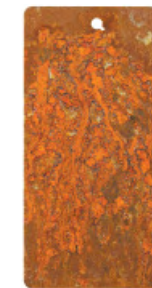
24 hours



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 flexi-

ble, 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 or 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.

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