

FLUID FILM Liquid AR Details

National Stock Number **030-01-381-7311**
1 gal/4 CTN:

Description: Amber, soft gel. Lanolin-based coating. Solvent free. Non-toxic. Will not evaporate. Anti-corrosive coating, lubricant and penetrant for all metals.

General Usage: Used in heavy marine and general industry, particularly for ballast tanks and voids, chains, hoists, wire rope, winches, turnbuckles, conveyors, bearings, augers, drills, valves, linkages, scales, joints and zert fittings. Preserves parts in storage or during shipment. Used in the maintenance of aircraft, heavy equipment, and automobiles. Also used in refineries, salt plants, power plants and gas companies.

Application: Airless spray, roller, brush or grease gun.

If this soft gel is to be transferred from its original container into a spraying device, it is desirable to break the gel's thixotropy by mechanical agitation.

The agitation will convert the product to a more liquid consistency and make pouring feasible.

If conditions dictate a heavier coating or lubricant, refer to other Eureka Chemical Company Product Bulletins for semi-liquids, gels and greases or consult Eureka Chemical Company.

Particulars for Heavy Marine: No sandblasting required. Remove flaking rust and peeling paint. Break all blisters larger than 25mm (one inch). Remove all standing water. Clean up all debris and silt. Residual coal tar and asphaltic coatings should be removed to leave a thickness of no more than 50 microns (0.002 inches).

If sufficient time and/or funds are not available for ideal preparation, FLUID FILM LIQUID AR may be applied with less preparation or none at all. In this case, it must be remembered that the product will soften scale to the point where exfoliation is likely. While this provides a relatively inexpensive method of descaling, tanks should be inspected more often, perhaps every several months, to determine if scale and coating have fallen. If so, touch-up of bare areas; this should be accomplished as soon as practical.

Coverage: 681m 2 (7,330 ft 2) @ 305 Microns - 12 Mils - New Steel.
PER 208L (55) 545m 2 (5,866 ft 2) @381 Microns - 15 Mils

Gal drum) 409m 2 (4,402 ft 2) @ 508 Microns - 20 Mils

Typical Properties

Specific Gravity: 0.910 - 0.920 (77°F)

Flash Point:

ASTM-D92
Cleveland Open Cup 157°C (315°F)

VOC:
CARB 310 Less than 0.1%

Viscosity:
(Typical) Brookfield HBF Spindle #5, 70°F
RPM Poise Stokes
5 1792 1969

**Effect on Copper,
Brass :** No staining.

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

Note 1: The use of anodes in tanks coated with LIQUID AR is considered an unnecessary expense and redundant to the purpose and function of the coating.

Note 2: When welding in tanks coated with LIQUID AR, 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 #202.2.

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

KEEP OUT OF REACH OF CHILDREN.

This document is subject to revision without notice.



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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)

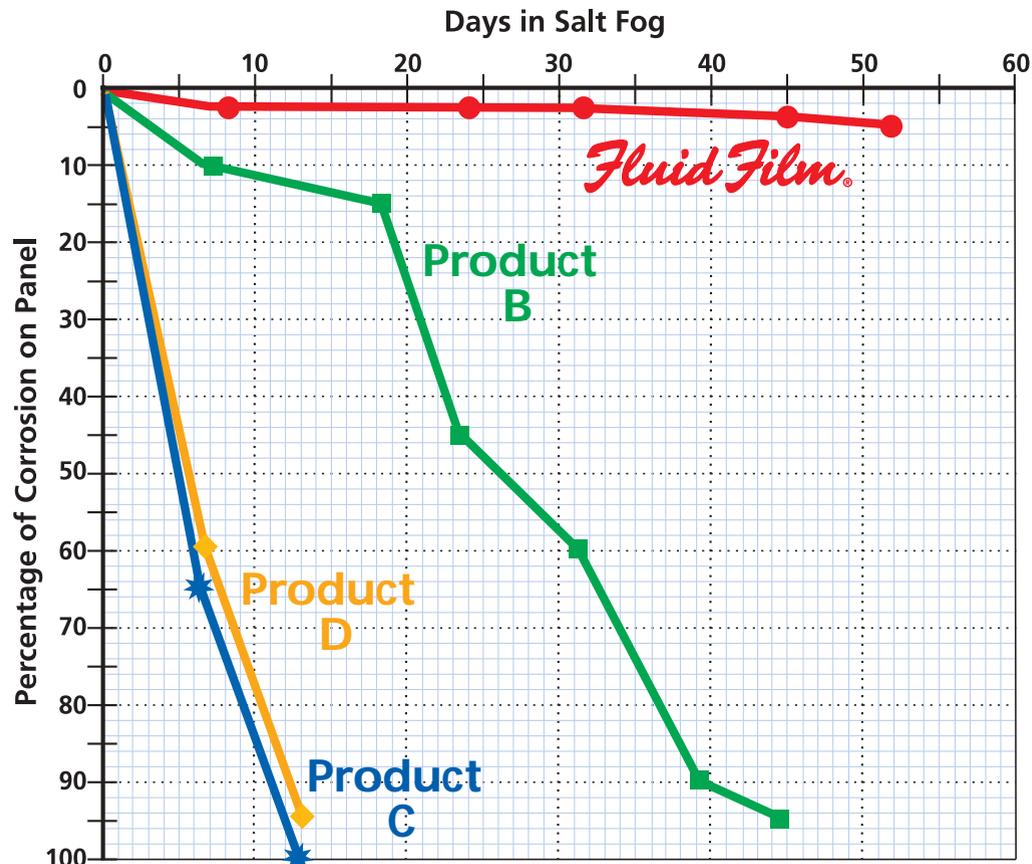
NSN-8030-01-387-1131	11-3/4 oz. 12/case
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FLUID FILM NAS (non-aerosol)

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%.



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

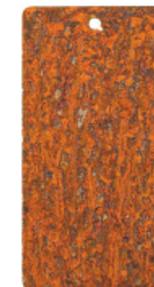
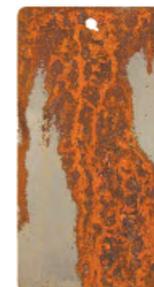


Product C

24 hours

168 hours - 7 Days

336 hours - 14 Days

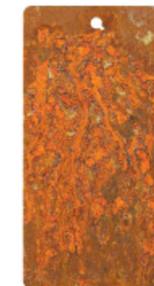


Product D

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.

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