



TECHNICAL DATA SHEET

FLUID FILM Liquid AR

Product information is not obligated supports for projects

09/2015

1. Description	One-component high build, solvent-free, lanolin based soft coating.																																				
2. Color	Amber																																				
3. General usage	Anti-corrosive coating for long term protection of permanent salt water ballast tanks - preferable for in-service tanks - in all types of vessels, drill water tanks, cofferdams, floating docks, caissons, void spaces and deck equipment.																																				
4. Principal characteristics	<ul style="list-style-type: none"> • solvent-free for higher safety; • highly economical as easily applied, saves labor, time, equipment and material costs; • can be applied with normal high performance airless equipment (> 22:1 pump ratio) in one coating process up to 800 µm. Can also be applied by air spraying, roller and by brush; • has a great affinity for ferrous metals, old rusty steel and old well adhering coatings ; • outstanding fresh and salt water resistance immediately after application; • self-healing in case of mechanical scoring or similar damage; • highly flexible and readily compensating for metal expansion, contraction and flexing; • non-toxic but should not be used in tanks carrying potable water. <p>FLUID FILM Liquid AR meets and exceeds the corrosion performance requirements of the United States Military Specification MIL-C-16173 and has the US National Stock Number 8030-01-381-7311.compensating for metal expansion, contraction and flexing;.</p>																																				
5. Technical data	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Specific Gravity</td> <td colspan="3">0,910 - 0,920</td> </tr> <tr> <td>Solid content</td> <td colspan="3">98 % (non volatile content)</td> </tr> <tr> <td>Recommended film thickness</td> <td colspan="3">400 µm up to 800 µm, depending on the required corrosion protection and on the thickness of the unremoved rust scale.</td> </tr> <tr> <td>Spreading rate</td> <td colspan="3">1 liter per 2 m² for a coating thickness of 500 microns</td> </tr> <tr> <td>Water resistant</td> <td colspan="3">immediately after application</td> </tr> <tr> <td>Flash point (ASTM-D92)</td> <td colspan="3">157°C (315 °F)</td> </tr> <tr> <td>Viscosity</td> <td style="text-align: center;"><u>RPM</u></td> <td style="text-align: center;"><u>Stokes</u></td> <td style="text-align: center;"><u>Poise</u></td> </tr> <tr> <td>Brookfield HBF (21 °C)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">1969</td> <td style="text-align: center;">17</td> </tr> <tr> <td>Spindle No. 5</td> <td></td> <td></td> <td></td> </tr> </table>	Specific Gravity	0,910 - 0,920			Solid content	98 % (non volatile content)			Recommended film thickness	400 µm up to 800 µm, depending on the required corrosion protection and on the thickness of the unremoved rust scale.			Spreading rate	1 liter per 2 m ² for a coating thickness of 500 microns			Water resistant	immediately after application			Flash point (ASTM-D92)	157°C (315 °F)			Viscosity	<u>RPM</u>	<u>Stokes</u>	<u>Poise</u>	Brookfield HBF (21 °C)	5	1969	17	Spindle No. 5			
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6. **Package**

1 ltr. can
 5 ltr. pail
 20 ltr pail
 208 ltr drum (55 US gallons)

Non returnable

7. **Shelf life/Stability**

Indefinite. Will not change in original pails and drums.

8. **Storage & Transport**

IMCO / UN / ADR / RID / RAR - not listed

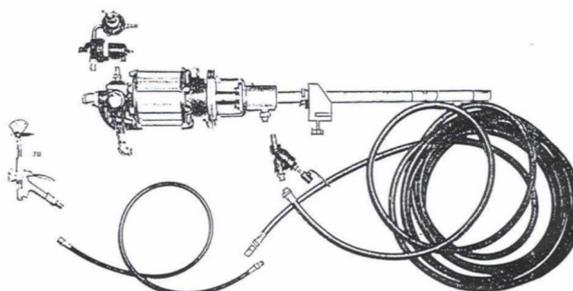
9. **Instructions for use**

- a. **FLUID FILM Liquid AR** can be applied at temperatures between -10 °C (263 K) and +40 °C (313 K). For application at low temperature the viscosity of the product may be adjusted for sprayability by warming up to not more than 40 °C. A material temperature of 20 °C is normally sufficient for airless spraying.
- b. If this soft gel is to be transferred from the 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 spraying feasible.
- c. Due to the fact that **FLUID FILM Liquid AR** is to be applied in a single coat, special care has to be taken on the backsides of bulbs, stiffeners, edges, openings etc. Precoating by brush is not obligatory.
- d. During application the coat thickness has to be controlled to prevent under- or overcoating.
- e. Do not add any thinner.
- f. When using in closed rooms (tanks, void spaces etc.) ventilation of sufficient capacity has to be assured during spraying application for oil-mist removal.

10. **Airless spraying equipment**

For application of the thixotropic **FLUID FILM Liquid AR** the use of special airless drum pumps (>22 : 1 pump ratio), preferably ALEMITE- STEWART WARNER VERSATAL PUMP, 7896 or WIWA Wagner Type Phoenix is recommended.

For adapting conventional airless pumps for **FLUID FILM Liquid AR** application the suction hose should be dismantled, the pump directly mounted on drum and immersed in the FLUID FILM: One to four 20 m lengths of material hose 1/2" usually are used, depending upon the distance of application area from the pump. Use as few lengths of material hose as possible. Usually for application of large tank surfaces the nozzle orifice (rotoclean type) is 0.025 type 163 - 725 (70° fan angle) or 0.027 type 163 - 727 (70 ° fan angle). The use of alternative nozzle sizes depends on the viscosity of **FLUID FILM Liquid AR** during application, the pump ratio and capacity.



11. Technical data for use

Applied by :	Amount of coats	Average film thickness in μm	Theoretical consumption in l/m^2	Theoretical spreading rate in m^2/l	Nozzle \varnothing mm	Mpa
Brush	1	50	0,05	20		
Roller	1	50	0,05	20		
Airspray	1	200	0,2	5	1,5	0,4
Airless	1	400-800	0,4 - 0,8	2,5 - 1,25	0,63	14

The durability of a coating system depends among other things on the film thickness. The film thickness should be selected according to the roughness of the steel surface, required durability and the corrosive environment. We recommend for ballast water tanks a preferred value over 400 μm for rusted IN-SERVICE construction.

Tank capacities used as a basis for calculation of surface areas and quantity required will not always correspond to the surface area to be coated. Multiplication factor recommendations, however, as well as job site assistance and instruction can be provided by manufacturers' local representative.

12. Recommended substrate condition

Ideally the steel surface should be free of loose rust and loose paint, and as dry as possible, before applying **FLUID FILM Liquid AR**.

The preferred surface preparation is high-pressure water washing followed by hand scraping to remove any remaining rust scale. The tank should then be ventilated to make the surface as dry as possible.

However, as **FLUID FILM Liquid AR** will displace water and gradually penetrate into the thick rust the coating itself can be used as a "rust descaler". After 6-12 months tanks treated with **FLUID FILM Liquid AR** can be readily scraped and mucked out, then **FLUID FILM Liquid AR** can be re-applied, with approximately 4-5 year service.

The use of additional cathodic protection by sacrificial anodes in tanks coated with **FLUID FILM Liquid AR** is considered an unnecessary expense and redundant to the purpose and function of the coating.

13. Safety precautions

- a. While **FLUID FILM Liquid AR** is not a toxic material and does not contain solvents the spray mist is not harmless. When spraying use suitable gloves and dust respirators. (Safety Rules for Spraying **P.P.A. Code: 0 - 1, Safety Phrases - S 37/39**).
- b. Ventilation should be provided in confined spaces to remove the spray mist or vapor-proof lighting should be used during the application
- c. Before starting hot work (burning welding etc.) on **FLUID FILM LIQUID AR** coating thicker than 100 μm , the coating material should be wiped back a distance of 1,5 m from where hot work is to be performed and from the deck area beneath the hot work.