



## A HIGH PURITY SOLVENT & SURFACTANT FORMULATION FOR HEAVY DUTY ON & OFF-LINE COMPRESSOR CLEANING

### PRODUCT DESCRIPTION

FYREWASH® F1 is the successor to FYREWASH® SB, the first hydrocarbon solvent-based chemical ever to be created especially for on-line, fired wash cleaning of industrial, marine or aviation gas turbine compressor. Fyrewash® F1 still retains all the cleaning power of SB to deal with even the heaviest oil and carbon-based compressor fouling. However, new manufacturing processes make FYREWASH® F1 the purest, most user friendly, low metals product of its kind on the market.

### APPLICATION

#### ON-LINE CLEANING

Is normally performed by mixing one part FYREWASH® F1 concentrate with four (4) parts of water into a stable solution. Higher dilutions of up to 1:9 can be used when fouling is light and/or when on-line washing is performed frequently.

Distilled or demineralised water of 5ppm TDS or less is recommended.

The volume of chemical solution required per wash and the optimum cleaning frequency will depend upon engine size, fouling tendency etc. When using FYREWASH® injection systems please consult your Rochem manual. If using any other system please consult our technical staff for recommendations.

FYREWASH® F1 can be used with any on-line/off-line injection system but for optimum cleaning results and economic usage of chemicals, Rochem offers a full range of patented manual or fully automatic atomising injection systems to suit any engine type. The low cost Rochem Efficiency Plus (E+) on-line, real-time efficiency and performance monitoring system is also available for use with any type of gas turbine.

#### OFF-LINE, CRANK WASHING

Concentrated FYREWASH® F1 is normally mixed with four (4) parts of distilled or deionised water. The solution is normally injected at cranking speed, allowed to soak for about 20 to 60 minutes then thoroughly rinsed off at cranking speed.

For detailed off-line washing instructions, including volume of cleaning solution per wash and washing frequencies, please refer to your OEM manual.

When using a Rochem-supplied injection system refer to your Rochem manual. Please also note that Rochem has developed an optional (short cycle) crank-washing procedure which can minimise chemical usage and downtime while still giving excellent cleaning results. This procedure is based on the initial injection of the chemical in a concentrated form, instead of a large volume of water/chemical solution. Please contact your nearest Rochem office for full information on this or any other compressor cleaning procedure.

**NEVER USE UNPROVEN CHEMICALS OR INJECTION SYSTEMS FOR COMPRESSOR CLEANING - ESPECIALLY FOR ON-LINE CLEANING!**

### FEATURES & BENEFITS

- ▶ Safely and effectively cleans compressors running at any speed and load condition.
- ▶ Far superior to any water based detergent for the removal of oil, grease, carbon, salt and general atmospheric compressor fouling.
- ▶ Leaves no chemical residue.
- ▶ 100% safety record in thousands of gas turbines over millions of operating hours.
- ▶ Approved by leading gas turbine manufacturers. Meets US Mil Spec requirements.
- ▶ On-line cleaning can eliminate or substantially reduce costly, time-consuming shutdowns for off-line cleaning and reduce dependence on standby plant.
- ▶ On-line cleaning completely avoids damaging shutdown/start-up thermal cycles and starting system wear and tear, which result from off-line crank washing.
- ▶ Non-flammable chemical solution. Mixes with most antifreeze agents. Does not affect engine materials and coatings.
- ▶ Supplied as a value for money 100% Concentrated chemical to reduce transport and storage costs.
- ▶ Worldwide availability and product support.
- ▶ Backed by Rochem's unique high value product liability insurance.

### APPLICATIONS

On-line cleaning of any type of gas turbine or process compressor.

Off-line, crank wash cleaning of any type of gas turbine or process compressor.

SAFETY AND HANDLING	
<b>HAZARDS</b>	EC Hazard rating: Xn, harmful US NFPA rating: 1, 2, 0
<b>PROTECTIVE MEASURES</b>	Wear suitable protective clothing, gloves and eye/face protection and use in a well-ventilated area.
<b>SPILLAGE</b>	Clean-up personnel should wear suitable protective clothing and eye/face protection. Do not run off to sewer. Collect with non-combustible absorbent material (i.e. vermiculite, sand or earth).
<b>FIRE</b>	Use foam, carbon dioxide, dry chemicals, sand or earth. Do <b>NOT</b> use water jets as this may spread the fire. May produce carbon monoxide.
<b>FIRST AID EYES</b>	Promptly rinse eyes with lots of clean water while lifting eyelids. Seek medical attention.
<b>SKIN</b>	Promptly wash skin with soap and water after removing any contaminated clothing from skin. If irritation persists seek medical attention.
<b>INHALATION</b>	Move affected person to fresh air/well ventilated area at once. Perform artificial respiration if breathing has stopped. Keep the affected person warm and at rest and get prompt medical attention.
<b>IF SWALLOWED</b>	Do <b>NOT</b> induce vomiting. Let affected person drink as much water as possible and get prompt medical attention. <b>NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS.</b>
<b>HANDLING</b>	Store in a well-ventilated area away from oxidisers, open flames and extreme heat.
<b>TRANSPORT</b>	IMDG Class: 9 UN Number: 3082 PG: III ADR Class: 9 Environmental hazardous substance, liquid, N.O.S, contains alkyl (C3-C5) benzenes. <b>USA</b> DOT Hazard Class: Combustible Liquid DOT Identification No: NA 1993 DOT Shipping Name: Combustible Liquid N.O.S
<b>PACKAGING</b>	Non-returnable containers. Approx 25 and 210 litres depending on country and availability. Special bulk volume deliveries may be possible depending on country and availability.

TYPICAL PROPERTIES	
<b>APPEARANCE</b>	Clear, amber liquid
<b>DENSITY</b>	In g/ml at 15°C: 0.91
<b>FLASH POINT PMCC</b>	
Concentrate:	>62°C
Solution:	None
<b>pH (20% solution)</b>	7 - 7.5
<b>COMPATIBILITY</b>	
Metal:	No known effect
Rubber:	May effect some types
<b>SOLUBILITY</b>	Forms a stable emulsion with water

IMPORTANT ECOLOGICAL NOTES	
FYREWASH® F1 contains a highly active petroleum based solvent and surfactant, which makes it unbeatable as a compressor cleaner.	
F1 is the ideal product to use for on-line, fired-washing because being a highly refined hydrocarbon-based compound, it burns very cleanly on reaching the combustion system and does not cause any additional pollution.	
For off-line, crank-wash cleaning <b>ALL</b> chemical solution and rinse water drainage should be collected and disposed of properly no matter what type of chemical (Solvent based or detergent based) is being used. <b>DO NOT</b> make the potentially very costly mistake of thinking that the chemical and rinse water drainage from water-based detergents can simply be dumped to storm drains or direct to earth. Any chemical cleaning solution and rinse water may become contaminated with potentially harmful deposits from the compressor and hot section so <b>ALL</b> drain off must be collected and disposed of properly. Remember, a solvent and surfactant cleaning compound like F1 will always clean more effectively than a detergent and it will also cost less to dispose of because it can be incinerated at lower cost.	

Rochem or any associated or subsidiary company's warranties of fitness and merchantability, if any, as well as any express warranties regarding the use of this product shall not be effective or actionable unless the goods are used as directed herein and in no other manner due to potential hazards from improper use of the goods described herein. Product might vary slightly depending on country of origin.



### Rochem Technical Services: Regional Offices

Europe:	11 Sun Valley Business Park, Winnall Close, Winchester, Hampshire SO23 0LB, UK email: sales@rts-europe.co.uk	Tel: (44-1962) 89 00 89	Fax: (44-1962) 89 00 90
USA East Coast:	1308 SE 20 <sup>th</sup> St, Cape Coral, FL 33990 email: steven.jones@rochemltd.com	Tel: (1-239) 772 5911	Fax: (1-503) 246 8697
USA Gulf	1532 Hartwick St, Houston, TX 77093 email: rtsgulf@rochemltd.com	Tel: (1-281) 227 1447	Fax: (1-281) 227 1455
USA West Coast	4711 SW Huber Street, Suite 7E, Portland, OR 97219 email: bob.auguston@rochemltd.com	Tel: (1-503) 246 8618	Fax: (1-503) 246 8697
Middle East & Africa:	P.O Box 6591, Sharjah, UAE email: rtsme@rochemltd.com	Tel: (971) 6 572 3762	Fax: (971) 6 572 6773
Asia	150 South Bridge Road, 05-02B Fook Hai Building, Singapore 058727 email: rtsasia@rochemltd.com	Tel: (65) 6299 5138	Fax: (65) 6299 3413

[www.rochem.net](http://www.rochem.net)