

ST-83A

Environmentally Acceptable Lubricant For Stern Tubes / Marine Hydraulic Systems

Biodegradable Marine Lubricant KEMEL ST-83A

Not OIL but LUBRICANT

Characteristics

2013 VGP of US EPA

ST-83A meets the EAL (Environmentally Acceptable Lubricant) specification in 2013 VGP of US EPA.

Base Fluid

Polyethylene glycol, a type of polyalkylene glycol, is well known as non-toxic material. It is generally applied in cosmetics and medicines.

Biodegradable

OECD 301C test method found ST-83A readily biodegradable.

Non-Toxic

ST-83A has been classified as harmless to aquatic lives under OECD 201, 202 and 203 tests.

Non-Bioaccumulative

ST-83A is not bioaccumulative to aquatic lives because it is water soluble.

No Sheen / No Sludge

ST-83A is water soluble and forms no sheen or discoloration to the water. Also produces no sludge or emulsion under water surface.

High Seawater Tolerance

ST-83A provides excellent lubrication and corrosion prevention even when the seawater content is 10%.

Seal Compatibility

For stern tubes, KEMEL special seal of advanced fluoro-rubber should be applied. Regular Viton seal is not compatible with ST-83A.

Comparison of base oils for EAL's

Base Oil	Non-Sheening	Water Tolerance
Polyalkylene Glycol	Good	Good
Vegetable Oil	Poor	Poor
Synthetic Ester	Poor	Poor

Patents

Granted in US (#7666822).

Remarks

- 1) ST-83A absorbs water contained in air. Piping design should be consulted with KEMEL.
- 2) Normal paints cannot be used with KEMEL ST-83A. Inorganic Zinc primer should be used.



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Product Data

Formula

Base fluid Polyethylene glycol

Typical Properties

1) Physical and Chemical Properties

Appearance Pale yellow liquid
Viscosity at 40°C 86 mm²/s
Viscosity at 100°C 15 mm²/s
Density at 15°C 1.13 g/cm³
Pour point -8°C
Flash point 225°C (COC)
Solubility Soluble in water

2) Environmental Properties

Property	Test method	Typical result
Biodegradability	OECD 301C	> 60%
Toxicity	OECD 201 (alge) OECD 202 (daphnia) OECD 203 (fish)	> 1000 mg/L
Bioaccumulation	OECD 107 and 117	Log Pow < 3
Sheen or sludge formation	Visual	No sheen / No sludge

3) Functional Properties

Property	Test method	Typical result
Rust protection (steel)	ASTM D665 (Sea water)	No rust
Corrosion protection (copper)	ASTM D130	1a
Foam suppression	ASTM D892	20/0 @24°C
Oxidation stability	ASTM D2893	Viscosity change: -1% @40°C