

## MATERIAL SAFETY DATA SHEET

**PRODUCT NAME : MECHANICAL PUMP OILS - KRYTOX® 1506, 1514, 1525**

### 1. Product and Company Identification

Product name: Krytox® mechanical pump oils: grades 1506, 1514 and 1525  
Synonyms: None  
Item Numbers: Grade 1506: H113-07-017; H113-07-018; H113-07-019; H113-07-020; H113-07-024; H113-07-027.  
Grade 1514: H113-08-017; H113-08-018; H113-08-019; H113-08-020; H113-08-021; 113-08-024; H113-08-027.  
Grade 1525: H113-09-017; H113-09-018; H113-09-019; H113-09-020; H113-09-024; H113-09-027.

#### European Contact Details

Edwards, Manor Royal, Crawley  
West Sussex, RH10 9LW, England

##### General enquiries

UK : +44 (0)1293 528844  
France : +(33) 1 47 98 24 01  
Germany : +(49) 6420-82-410  
Italy : +(39) 0248-4471

#### US Contact Details

Edwards, 301 Ballardvale Street,  
Wilmington, MA 01887

##### General enquiries

+(1) 978-658-5410  
Toll Free: 1-800-848-9800

24 h Emergency telephone number:

Chemtrec: 1-800-424-9300

### 2. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Perfluoroalkylether	100	60164-51-4	Not applicable	Not applicable

\*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive (67/548/EEC, as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

This material when properly handled according to good working and hygienic practices is not dangerous to human health and the environment. Vapours which may irritate the respiratory system may be released above 350 °C/662 °F.

For short and long term exposure effects see Section 11 Toxicological data.

Eye Effects: Excessive exposure may cause irritation, discomfort, excessive lacrimation and blurred vision.

Skin Effects: Excessive exposure may cause irritation, discomfort and rash.

Ingestion/Oral Effects: No information available.

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**Inhalation Effects:** Low volatility makes inhalation an unlikely hazard in normal use. The thermal decomposition vapours of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** None known.

NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	1	Health	1	0 = No Hazard
Flammability	0	Flammability	0	1 = Slight Hazard
Instability	0	Reactivity	0	2 = Moderate Hazard
				3 = Serious Hazard
				4 = Severe Hazard

### 4. First Aid Measures

**Eyes:** Rinse with plenty of water. If irritation persists, consult a specialist.

**Skin:** Wash off with soap and water. If irritation persists, seek medical attention.

**Ingestion/Oral:** Rinse mouth. Drink water as a precaution (or, if possible, charcoal slurry). Do not induce vomiting without medical advice. Consult a physician after significant exposure.

**Inhalation:** Move to fresh air in case of accidental inhalation of vapours of decomposition products. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration as indicated. Seek immediate medical attention.

**Other Information:** Never give anything by mouth to an unconscious person.

### 5. Fire Fighting Measures

**Extinguishing Media:** The product does not burn. Select extinguishing media to suit other material(s) involved.

**Fire and Explosion Hazard:** Vapours which may irritate the respiratory system may be released above 350 °C / 662 °F.

**Special Protective Equipment for Fire Fighters:** Fire fighters should wear a self-contained breathing apparatus (SCBA) which meets appropriate standards operated in positive pressure mode. Skin protection should be worn to protect from thermal combustion products.

For Flammability Properties - see Section 9

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#### 6. Accidental Release Measures

In the event of spillage:

- Wear personal protective clothing (see Section 8 Exposure Controls and Personal Protection).
- Recover released product and collect in a suitable container for reuse or disposal. Wash area to prevent slip hazard.
- Avoid discharge into sewage systems, surface or underground waters and the soil

#### 7. Handling and Storage

Handling: Avoid temperatures > 350 °C / 662 °F without adequate ventilation. Wear protective clothing (see Section 8). Avoid contact with eyes. Do not breath vapours or spray mists.

Storage: Keep tightly closed in a dry, cool well ventilated place. No special restrictions on storage with other products. Store in glass or polyethylene containers.

#### 8. Exposure Controls/Personal Protection

##### Exposure Limits:

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Perfluoroalkylether	Not Applicable	Not Applicable	Not Applicable

##### Personal Protection:

Engineering Measures: No specific measures required under normal conditions.

Respiratory Protection: No specific measures required under normal conditions. Wear suitable respiratory equipment if thermal breakdown products may be present.

Hand/Skin Protection: Wear impervious PVC gloves.

Eye/Face Protection: Wear safety glasses.

Hygiene Measures: Avoid contact with skin. Do not eat or smoke whilst using the product. Wash hands before eating or smoking. Keep product away from tobacco products.

Other/General Protection: None.

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### 9. Physical and Chemical Properties

Appearance and Odour	Colourless, odourless, viscous liquid	Boiling point	No data available	°C/°F
pH (as supplied)	Neutral	Freezing Point	No data available	°C/°F
Solubility in Water	Insoluble	Auto Ignition	No data available	°C/°F
Volatile Content by Volume	No data available	Flash Point	Does not burn	°C/°F
Specific Gravity	1.86 - 1.91 @ 24 °C/75 °F			
Vapour Pressure (mbar @ 20 °C)	Grade 1506: $5.2 \times 10^{-7}$ Grade 1514: $2.6 \times 10^{-7}$ Grade 1525: $1.3 \times 10^{-7}$	Vapour Pressure (Torr @ 68 °F)	Grade 1506: $3.9 \times 10^{-7}$ Grade 1514: $1.0 \times 10^{-7}$ Grade 1525: $1.9 \times 10^{-7}$	

### 10. Stability and Reactivity

Stability:	Stable.
Material/Conditions to Avoid:	Avoid temperatures above 350 °C/662 °F. No materials to be specifically avoided.
Hazardous Decomposition:	Vapours which may irritate the respiratory system may be released above 350 °C/662 °F.
Hazardous Polymerisation:	Will not occur.

### 11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 3 Hazards Identification.

#### Animal data:

ALD value:	Dermal : >17000 mg/kg (rat),	Oral : >25000 mg/kg (rat)
ALC value:	Inhalation /4h : >19.54 mg/l (rat)	

Note: The figures stated above are for perfluoroalkylether.

#### Carcinogenicity:

No information available.

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### 12. Ecological Information

Aquatic toxicity of the product is unlikely, due to the insolubility of the product.

Perfluoroalkylether toxicity to fish: static test, LC50, 96 h - Oncorhynchus mykiss (rainbow trout) > 1000 mg/l.

Perfluoroalkylether aquatic toxicity: static test, EC50, 48 h - Daphnia magna (water flea) > 1000 mg/l.

No other information available.

### 13. Disposal Considerations

If recycling is not practicable, dispose of the product and used packaging in accordance with all local and national requirements.

### 14. Transport Information

This product is not classified as dangerous under transport regulations.

PARAMETER	EUROPEAN	CANADIAN TDG	UNITED STATES DOT
Proper Shipping Name	Not applicable	Not applicable	Not applicable
Hazard Class	Not applicable	Not applicable	Not applicable
Identification Number	Not applicable	Not applicable	Not applicable
Shipping Label	Not applicable	Not applicable	Not applicable

### 15. Regulatory Information

#### European Regulatory Information

This product has been classified in accordance with the Dangerous Substances Directive (67/548/EEC, as amended) and the Preparations Directive (88/379/EEC, as amended), implemented in the UK as the Chemical (Hazard Information and Packing) Regulations 1994 (CHIP, as amended).

Classified as dangerous to supply : No

Risk Phrases : Not applicable

Safety Phrases : Not applicable

Symbols : None

#### United States Regulatory Information

All ingredients contained in this product are included on the EPA TSCA Chemical Substance Inventory.

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR Part 372.

This product does not contain ingredients known to the state of California to cause cancer or reproductive toxicity.

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### Canadian Regulatory Information

WHMIS Classification: D2B

All ingredients contained in this product are included on the Canadian DSL.

### 16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and the EU Safety Data Sheet Directive 91/155/EEC.

Sources of information for this data sheet:

- Du Pont "Krytox® Series 143" Safety Data Sheet. Ref: 150000001173. Version 2.1. Revision Date: 10.05.2006.

### Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; ALC - Average Lethal Concentration; ALD - Average Lethal Dose; ANSI - American National Standards Institute; Canadian TDG - Canadian Transportation of Dangerous Goods; CAS - Chemical Abstracts Service; Chemtrec - Chemical Transportation Emergency Center (US); CHIP - Chemical (Hazard Information and Packing); DSL - Domestic Substances List; EC - Equivalent Concentration; EH40 (UK) - HSE Guidance Note EH40 Occupational exposure limits; EPA - Environmental Protection Agency; EPCRA - Emergency Planning and Community Right-to-Know Act; HMIS - Hazardous Material Information Service; LC - Lethal Concentration; NFPA - National Fire Protection Association; OSHA - Occupational Safety and Health Administration, US department of Labour; PEL - Permissible exposure limit; SARA (Title III) - Superfund Amendments and Reauthorization Act; SARA 313 - Superfund Amendments and Reauthorization Act, Section 313; SCBA - Self-Contained Breathing Apparatus; STEL - Short Term Exposure Limit; TLV - threshold limit value; TSCA - Toxic Substances Control Act Public Law 94-469; TWA - Time-Weighted Average; US DOT - US Department of Transportation; WHMIS - Workplace Hazardous Materials Information System.

### Revisions:

Nov 2007 - Data Sheet updated to reflect the latest supplier safety information.

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Although the information and recommendations in this data sheet are to the best of our knowledge correct, it is recommended that you make your own determination of the material's suitability for your purpose before you use it. The information contained in this data sheet has been reproduced from the manufacturers data; the accuracy of this information is the responsibility of the manufacturer. Edwards accept no responsibility for damage of any nature resulting from the use of, or the reliance upon, this data sheet.