

**SAFETY DATA SHEET****Optical Cleaning Fluid 10, BULK**

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

**1. Identification****Product identifier****Product name** Optical Cleaning Fluid 10, BULK**Product number****Recommended use of the chemical and restrictions on use****Application** Cleaning agent.**Details of the supplier of the safety data sheet****Emergency telephone number****Emergency telephone** CHEMTREC (800) 424-9300**2. Hazard(s) identification****Classification of the substance or mixture****Physical hazards** Not Classified**Health hazards** Eye Irrit. 2A - H319**Environmental hazards** Aquatic Chronic 3 - H412**Human health** Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash.**Environmental** The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.**Physicochemical** Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Gas or vapor displaces oxygen available for breathing (asphyxiant).**Label elements****Pictogram**

## Optical Cleaning Fluid 10, BULK

<b>Signal word</b>	Warning
<b>Hazard statements</b>	H319 Causes serious eye irritation. H412 Harmful to aquatic life with long lasting effects.
<b>Precautionary statements</b>	P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/ attention. P302+P352 If on skin: Wash with plenty of water. P501 Dispose of contents/ container in accordance with national regulations.
<b>Supplemental label information</b>	Safety data sheet available on request. For use in industrial installations only.

### Other hazards

This product does not contain any substances classified as PBT or vPvB.

### 3. Composition/information on ingredients

#### Mixtures

<b>1,1,1,2,2,3,4,5,5,5-decafluoropentane</b>	<b>60-100%</b>
CAS number: 138495-42-8	
<b>Classification</b> Aquatic Chronic 3 - H412	
<b>PROPAN-2-OL</b>	<b>10-30%</b>
CAS number: 67-63-0	
<b>Classification</b> Flam. Liq. 2 - H225 Eye Irrit. 2A - H319 STOT SE 3 - H336	

The Full Text for all Hazard Statements are Displayed in Section 16.

<b>Composition comments</b>	The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of CFR 1900.1200 TSCA: The ingredients of this product are on the TSCA Inventory.
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### Composition

### 4. First-aid measures

#### Description of first aid measures

<b>General information</b>	Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on the side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration.
<b>Inhalation</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.
<b>Ingestion</b>	Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Consult a physician for specific advice.

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<b>Skin Contact</b>	Remove contaminated clothing and rinse skin thoroughly with water.
<b>Eye contact</b>	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Consult a physician for specific advice.

### Most important symptoms and effects, both acute and delayed

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	Vapors may cause headache, fatigue, dizziness and nausea. Difficulty in breathing. Upper respiratory irritation. Severe irritation of nose and throat.
<b>Ingestion</b>	May cause stomach pain or vomiting. Drowsiness, dizziness, disorientation, vertigo.
<b>Skin contact</b>	Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.
<b>Eye contact</b>	Irritation of eyes and mucous membranes. Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.

### Indication of immediate medical attention and special treatment needed

<b>Notes for the doctor</b>	No specific recommendations. If in doubt, get medical attention promptly.
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## 5. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.
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### Special hazards arising from the substance or mixture

<b>Flammability Class</b>	The product is not flammable.
<b>Specific hazards</b>	Neutral
<b>Hazardous combustion products</b>	Heating may generate the following products: Toxic and corrosive gases or vapors. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Oxides of carbon. Oxides of nitrogen.

### Advice for firefighters

<b>Protective actions during firefighting</b>	Move containers from fire area if it can be done without risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level.
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### Environmental precautions

<b>Environmental precautions</b>	Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.
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### Methods and material for containment and cleaning up

<b>Methods for cleaning up</b>	Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation.
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**Reference to other sections** See Section 11 for additional information on health hazards.

### 7. Handling and storage

#### Precautions for safe handling

**Usage precautions** Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes. Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.

**Advice on general occupational hygiene** Do not eat, drink or smoke when using this product.

#### Conditions for safe storage, including any incompatibilities

**Storage precautions** Keep container tightly closed. Store in tightly-closed, original container in a dry, cool and well-ventilated place.

#### Specific end uses(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

**Reference to other sections.** Store away from incompatible materials (see Section 10).

### 8. Exposure Controls/personal protection

#### Control parameters

#### Occupational exposure limits

##### **1,1,1,2,2,3,4,5,5,5-decafluoropentane**

Long-term exposure limit (8-hour TWA): SUP 200 ppm

##### **PROPAN-2-OL**

Long-term exposure limit (8-hour TWA): OSHA 400 ppm 980 mg/m<sup>3</sup>

Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 492 mg/m<sup>3</sup>

Short-term exposure limit (15-minute): ACGIH 400 ppm 984 mg/m<sup>3</sup>

A4

OSHA = Occupational Safety and Health Administration.

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

#### **Additional Occupational Exposure Limits**

**Ingredient comments** ACGIH = US Standard. WEL = Workplace Exposure Limits

#### Exposure controls

#### **Protective equipment**



#### **Appropriate engineering controls**

No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.

#### **Eye/face protection**

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

#### **Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.

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<b>Other skin and body protection</b>	Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.
<b>Hygiene measures</b>	No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products. When using do not eat, drink or smoke.
<b>Respiratory protection</b>	Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Wear self-contained breathing apparatus with full facepiece.

### 9. Physical and Chemical Properties

#### Information on basic physical and chemical properties

<b>Appearance</b>	Clear liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Slight. Ether.
<b>Odor threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Melting point</b>	<-80°C/<-112°F
<b>Initial boiling point and range</b>	37°C @ 101.3 kPa
<b>Flash point</b>	The product is not flammable.
<b>Evaporation rate</b>	No information available.
<b>Evaporation factor</b>	No information available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	Lower flammable/explosive limit: 7.0 %(V) Upper flammable/explosive limit: 15.0 %(V)
<b>Other flammability</b>	The product is not flammable.
<b>Vapor pressure</b>	64.7 kPa @ 25°C/77°F
<b>Vapor density</b>	4.4
<b>Relative density</b>	1.42 g/cm <sup>3</sup> @ 0°C
<b>Bulk density</b>	No information available.
<b>Solubility(ies)</b>	3.4 g/l water @ 25°C/77°F
<b>Partition coefficient</b>	No information available.
<b>Auto-ignition temperature</b>	No information available.
<b>Decomposition Temperature</b>	No information available.
<b>Viscosity</b>	0.47 mPa s @ 25°C
<b>Explosive properties</b>	No information available.
<b>Oxidizing properties</b>	Not known.
<b>Refractive index</b>	No information available.
<b>Particle size</b>	No information available.

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<b>Molecular weight</b>	Not applicable.
<b>Volatility</b>	100%
<b>Saturation concentration</b>	No information available.
<b>Critical temperature</b>	No information available.
<b>Volatile organic compound</b>	This product contains a maximum VOC content of 142 g/l.
<b>Flammability</b>	The product is not flammable.

### 10. Stability and reactivity

<b>Reactivity</b>	The following materials may react with the product: Strong alkalis.
<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended.
<b>Possibility of hazardous reactions</b>	Will not polymerize.
<b>Conditions to avoid</b>	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
<b>Materials to avoid</b>	Alkali metals. Alkaline earth metals. Powdered metal.
<b>Hazardous decomposition products</b>	Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO <sub>2</sub> ). Carbon monoxide (CO).

### 11. Toxicological information

#### Information on toxicological effects

<b>Inhalation</b>	Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.
<b>Ingestion</b>	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
<b>Skin Contact</b>	Product has a defatting effect on skin. May cause allergic contact eczema.
<b>Eye contact</b>	May cause temporary eye irritation.
<b>Medical Symptoms</b>	Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

#### Toxicological information on ingredients.

##### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 5,000.0

**Species** Rat

**ATE oral (mg/kg)** 5,000.0

#### Acute toxicity - dermal

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<b>Acute toxicity dermal (LD<sub>50</sub> mg/kg)</b>	5,000.0
<b>Species</b>	Rat
<b>ATE dermal (mg/kg)</b>	5,000.0
<b><u>Acute toxicity - inhalation</u></b>	
<b>Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l)</b>	114.0
<b>Species</b>	Rat
<b>ATE inhalation (vapours mg/l)</b>	114.0
<b><u>Skin corrosion/irritation</u></b>	
<b>Animal data</b>	Not irritating. Rabbit
<b>Human skin model test</b>	Data lacking.
<b>Extreme pH</b>	Not applicable. Not corrosive to skin.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Not irritating. Rabbit
<b><u>Respiratory sensitization</u></b>	
<b>Respiratory sensitization</b>	Data lacking.
<b><u>Skin sensitization</u></b>	
<b>Skin sensitization</b>	Not sensitizing. - Guinea pig: Not sensitizing.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	This substance has no evidence of mutagenic properties.
<b>Genotoxicity - in vivo</b>	This substance has no evidence of mutagenic properties.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	Does not contain any substances known to be carcinogenic.
<b>IARC carcinogenicity</b>	Not listed.
<b>NTP carcinogenicity</b>	Not listed.
<b>OSHA Carcinogenicity</b>	Not listed.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	No evidence of reproductive toxicity in animal studies.
<b>Skin Contact</b>	Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.
<b>Eye contact</b>	May cause eye irritation.
<b>Acute and chronic health hazards</b>	There is no evidence that the product can cause cancer.

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### PROPAN-2-OL

#### Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 5,800.0

Species Rat

ATE oral (mg/kg) 5,800.0

#### Acute toxicity - dermal

Acute toxicity dermal (LD<sub>50</sub> mg/kg) 13,000.0

Species Rabbit

ATE dermal (mg/kg) 13,000.0

#### Acute toxicity - inhalation

Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l) 16,000.0

Species Rat

ATE inhalation (vapours mg/l) 16,000.0

#### Carcinogenicity

IARC carcinogenicity IARC Group 3 Not classifiable as to its carcinogenicity to humans.

NTP carcinogenicity Not listed.

OSHA Carcinogenicity Not listed.

## 12. Ecological Information

**Ecotoxicity** Dangerous for the environment if discharged into watercourses.

### Ecological information on ingredients.

#### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

**Ecotoxicity** It is unlikely that the substance will dissolve in water in amounts big enough to have a toxic effect on fish and daphnies.

### Toxicity

**Toxicity** Very toxic to aquatic organisms.

### Ecological information on ingredients.

#### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 13.9 mg/l, Onchorhynchus mykiss (Rainbow trout)

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, 48 hours: 11.7 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: >120 mg/l, Algae



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### PROPAN-2-OL

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 9,640 mg/l, Fish
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 5102 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	IC <sub>50</sub> , 72 hours: >2,000 mg/l, Algae

#### Persistence and degradability

**Persistence and degradability** The product is not readily biodegradable.

#### Ecological information on ingredients.

##### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

**Persistence and degradability** The product is not expected to be biodegradable.

#### Bioaccumulative potential

**Bio-Accumulative Potential** No data available on bioaccumulation.

**Partition coefficient** No information available.

#### Ecological information on ingredients.

##### 1,1,1,2,2,3,4,5,5,5-decafluoropentane

**Bio-Accumulative Potential** Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

**Partition coefficient** Pow: 2.7

#### Mobility in soil

**Mobility** The product contains volatile substances which may spread in the atmosphere.

#### Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

#### Other adverse effects

**Other adverse effects** The product contains a substance or substances that will contribute to global warming (greenhouse effect). The product contains a substance which has a photochemical ozone creation potential.

### 13. Disposal considerations

#### Waste treatment methods

**General information** Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

**Disposal methods** Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

### 14. Transport information

**General** Not regulated. The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DoT).

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### UN Number

Not applicable. No information required.

### UN proper shipping name

**Proper shipping name (TDG)** Not Hazardous Not Regulated

**Proper shipping name (IMDG)** Not Hazardous Not Regulated

**Proper shipping name (ICAO)** Not Hazardous Not Regulated

**Proper shipping name (DOT)** Not Hazardous Not Regulated

### Transport hazard class(es)

Not applicable. No information required.

### Packing group

Not applicable. No information required.

### Special precautions for user

Not applicable. No information required.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable. No information required.

## 15. Regulatory information

### US Federal Regulations

#### **SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

Not listed.

#### **CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)**

Not listed.

#### **SARA Extremely Hazardous Substances EPCRA Reportable Quantities**

Not listed.

#### **SARA 313 Emission Reporting**

Not listed.

#### **CAA Accidental Release Prevention**

Not listed.

#### **SARA (311/312) Hazard Categories**

None

#### **OSHA Highly Hazardous Chemicals**

Not listed.

### US State Regulations

#### **California Proposition 65 Carcinogens and Reproductive Toxins**

Not listed.

#### **California Air Toxics "Hot Spots" (A-I)**

*PROPAN-2-OL*

Present.

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### California Air Toxics "Hot Spots" (A-II)

Not listed.

### California Directors List of Hazardous Substances

*PROPAN-2-OL*

Present.

### Massachusetts "Right To Know" List

*PROPAN-2-OL*

Present.

### Rhode Island "Right To Know" List

*PROPAN-2-OL*

Present.

### Minnesota "Right To Know" List

*PROPAN-2-OL*

Present.

### New Jersey "Right To Know" List

*PROPAN-2-OL*

Present.

### Pennsylvania "Right To Know" List

*PROPAN-2-OL*

Present.

### Inventories

#### Canada - DSL/NDSL

Yes

#### US - TSCA

All the ingredients are listed.

1,1,1,2,2,3,4,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule

(SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal and film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

### 16. Other information

<b>Revision comments</b>	NOTE: Lines within the margin indicate significant changes from the previous revision.
<b>Revision date</b>	6/23/2016
<b>Revision</b>	13
<b>Supersedes date</b>	4/25/2016
<b>SDS No.</b>	BULK - OCF10P

## Optical Cleaning Fluid 10, BULK

<b>SDS status</b>	Approved.
<b>Hazard statements in full</b>	H225 Highly flammable liquid and vapor. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H412 Harmful to aquatic life with long lasting effects.
<b>NFPA - health hazard</b>	Irritation, minor residual injury. (1)
<b>NFPA - flammability hazard</b>	Burns only if pre-heated. (1)
<b>NFPA - instability hazard</b>	Unstable if heated. (1)
<b>NFPA - special hazard</b>	N/A
<b>ACA HMIS Health rating.</b>	Slight Hazard. (1)
<b>ACA HMIS Flammability rating.</b>	Burns only if pre-heated. (1)
<b>ACA HMIS Physical hazard rating.</b>	Unstable if heated. (1)
<b>ACA HMIS Personal protection rating.</b>	X Ask your supervisor for guidance

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.