



# FLEURON™ MFD-USF

## Safety Data Sheet

According to 29CFR 1910.1200 OSHA Hazard Communication Standard  
Issue date: 3/1/2026 Revision date: 3/24/2026 Version: 1.0

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : FLEURON™ MFD-USF

#### 1.2. Recommended use and restrictions on use

Recommended use : Laboratory chemicals, Castable/Moldable Material  
Restrictions on use : Scientific research and development

#### 1.3. Supplier

Axoft Inc.  
148 Sidney St., Cambridge, MA 02139  
USA  
T +1 (857) 242-8157  
[info@axoft.us](mailto:info@axoft.us) - [www.axoft.us](http://www.axoft.us)

#### 1.4. Emergency telephone number

Emergency number : Call Foad Vashahi 858-353-3703

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture


##### GHS US classification

Flammable liquids Category 3	H226	Flammable liquid and vapor
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Eye irritation Category 2A	H319	Causes serious eye irritation
Skin sensitization, Category 1	H317	May cause an allergic skin reaction
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335	May cause respiratory irritation

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) : 

Signal word (GHS US) : Warning

Hazard statements (GHS US) : H226 - Flammable liquid and vapor  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground/Bond container and receiving equipment.  
P241 - Use explosion-proof electrical, lighting, ventilating equipment.  
P242 - Use only non-sparking tools.

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P243 - Take precautionary measures against static discharge.  
P261 - Avoid breathing mist, spray, vapors.  
P264 - Wash hands, face thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace.  
P280 - Wear eye protection, protective clothing, protective gloves.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P363 - Wash contaminated clothing before reuse.  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.  
P312 - Call a POISON CENTER, a doctor if you feel unwell.  
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.  
P370+P378 - In case of fire: Use carbon dioxide (CO<sub>2</sub>), dry extinguishing powder, Water spray, foam to extinguish.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P405 - Store locked up.  
P501 - Dispose of contents/container to a hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : None known.

### 2.4. Unknown acute toxicity (GHS US)

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%
Proprietary Perfluoropolyether Polymer	CAS-No.: Proprietary	40-60
1,3-Bis(trifluoromethyl)benzene	CAS-No.: 402-31-3	40-60
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	CAS-No.: 162881-26-7	< 1

\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : First aider: Pay attention to self-protection!. Call a poison center or a doctor if you feel unwell.  
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.  
First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

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First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Rinse mouth. If you feel unwell, seek medical advice.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	: May cause respiratory irritation. Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Inhalation	: May cause respiratory irritation.
Skin	: Causes skin irritation. May cause an allergic skin reaction.
Eyes	: Causes serious eye irritation.
Ingestion	: May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic symptoms	: No chronic health hazards are likely for this material.

### 4.3. Immediate medical attention and special treatment, if necessary

None under normal conditions. Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Carbon dioxide. Foam.
Unsuitable extinguishing media	: Do not use a solid water stream as it may scatter and spread fire.

### 5.2. Specific hazards arising from the chemical

Fire hazard	: Flammable liquid and vapor. Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors. Keep away from open flames, hot surfaces and sources of ignition.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Very toxic and corrosive gases are released. Hydrogen fluoride. Cyanides. Nitrogen oxides. Carbon oxides (CO, CO <sub>2</sub> ).

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. On heating, there is a risk of bursting due to internal pressure build-up. Cool down the containers exposed to heat with a water spray.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Evacuate area. Eliminate all ignition sources. Ventilate area. Do not breathe vapors. Do not get in eyes, on skin, or on clothing. Do not attempt to take action without suitable protective equipment. Stop leak if safe to do so.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Evacuate area. Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe mist, vapors. Avoid contact with skin, eyes and clothing.

#### 6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

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### 6.2. Environmental precautions

Avoid release to the environment. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

### 6.3. Methods and material for containment and cleaning up

For containment	: Remove all sources of ignition. Stop leak, if possible without risk. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Use non-sparking tools.
Methods for cleaning up	: Absorb and/or contain spill with inert material, then place in suitable container. Use non-sparking tools.
Other information	: Dispose of materials or solid residues at an authorized site. Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	: Ensure adequate ventilation. Use explosion-proof equipment. Flammable vapors may accumulate in the container. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Ground/bond container and receiving equipment. Wear personal protective equipment. Do not breathe mist, vapors. Do not get in eyes, on skin, or on clothing. Keep container closed when not in use. Empty containers retain product residue and can be hazardous. Handle uncleaned empty containers as full ones.
Hygiene measures	: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice.

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

Technical measures	: Ground/bond container and receiving equipment.
Storage conditions	: Store in a well-ventilated place. Keep away from ignition sources. Keep cool. Keep container tightly closed. Store locked up.
Incompatible materials	: Keep away from strong oxidizers. Keep away from (strong) bases.
Packaging materials	: Store always product in container of same material as original container.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station. Use spark-/explosionproof appliances and lighting system. Use explosion-proof equipment.
Environmental exposure controls	: Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Wear recommended personal protective equipment.

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### Materials for protective clothing:

Use chemically protective clothing.

### Hand protection:

Chemically resistant protective gloves

### Eye protection:

Chemical goggles

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

In operations where exposure limits are exceeded or exposure levels are excessive, an approved respirator should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

### Thermal hazard protection:

Not applicable.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid. Clear. Colourless to yellow liquid.
Color	: Colorless to yellow
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: 116 °C
Flash point	: 26 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Flammable liquid and vapor.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 24 mPa·s
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: Not oxidising.

### 9.2. Other information

No additional information available

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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Highly flammable liquid and vapor.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

#### 10.5. Incompatible materials

Strong bases. Strong oxidizers.

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

#### Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)

LD50 oral rat	> 2000 mg/kg body weight
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LD50 dermal rat	> 2000 mg/kg body weight
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Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : May cause an allergic skin reaction.  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified. This product does not contain any component that is considered a carcinogen by IARC, ACGIH, OSHA or NTP.  
Reproductive toxicity : Not classified  
STOT-single exposure : May cause respiratory irritation.

#### 1,3-Bis(trifluoromethyl)benzene (402-31-3)

STOT-single exposure	May cause respiratory irritation.
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STOT-repeated exposure	: Not classified
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#### Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)

NOAEL (oral,rat,90 days)	> 1000 mg/kg body weight Animal: rat, Guideline: other:92/69/eec
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Aspiration hazard : Not classified  
Viscosity, kinematic : No data available  
Symptoms/effects : May cause respiratory irritation. Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.  
Inhalation : May cause respiratory irritation.  
Skin : Causes skin irritation. May cause an allergic skin reaction.

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Eyes	: Causes serious eye irritation.
Ingestion	: May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic symptoms	: No chronic health hazards are likely for this material.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Unknown hazards to the aquatic environment. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

#### Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)

LC50 - Fish [1]	> 0.09 mg/l Test organisms (species): other:Zebra Fish Brachydanio rerio
EC50 - Crustacea [1]	> 1.175 mg/l Test organisms (species): other aquatic crustacea:Daphnia Magna
EC50 72h - Algae [1]	> 0.26 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

#### 12.2. Persistence and degradability

##### FLEURON™ MFD-USF

Persistence and degradability : No data available.

##### Proprietary Perfluoropolyether Polymer (Proprietary)

Persistence and degradability : No data available.

##### 1,3-Bis(trifluoromethyl)benzene (402-31-3)

Persistence and degradability : Not rapidly degradable

##### Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)

Persistence and degradability : Not rapidly degradable

#### 12.3. Bioaccumulative potential

No additional information available

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Regional waste regulation	: Dispose of in accordance with applicable federal, state, and local regulations.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Flammable vapors may accumulate in the container. Do not re-use empty containers.




### SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

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DOT	IMDG	IATA
<b>14.1. UN number</b>		
1993	1993	1993
<b>14.2. Proper Shipping Name</b>		
Flammable liquids, n.o.s. (1,3-Bis(trifluoromethyl)benzene)	FLAMMABLE LIQUID, N.O.S. (1,3-Bis(trifluoromethyl)benzene)	Flammable liquid, n.o.s. (1,3-Bis(trifluoromethyl)benzene)
<b>14.3. Transport hazard class(es)</b>		
3	3	3
		
<b>14.4. Packing group</b>		
III	III	III
<b>14.5. Environmental hazards</b>		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available		

### 14.6. Special precautions for user

<b>DOT</b>	
UN-No.(DOT)	: UN1993
DOT Special Provisions (49 CFR 172.102)	: B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable. B52 - Notwithstanding the provisions of 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

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### IMDG

Special provision (IMDG)	: 223, 274, 955
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1, TP29
EmS-No. (Fire)	: F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage)	: S-E - SPILLAGE SCHEDULE Echo - FLAMMABLE LIQUIDS, FLOATING ON WATER
Stowage category (IMDG)	: A

### IATA

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y344
PCA limited quantity max net quantity (IATA)	: 10L
PCA packing instructions (IATA)	: 355
PCA max net quantity (IATA)	: 60L
CAO packing instructions (IATA)	: 366
CAO max net quantity (IATA)	: 220L
Special provision (IATA)	: A3
ERG code (IATA)	: 3L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### FLEURON™ MFD-USF

SARA Section 311/312 Hazard Classes	Refer to Section 2 for OSHA Hazard Classification.
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Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Proprietary Perfluoropolyether Polymer	Proprietary – This is being supplied under TSCA R&D exemption.	Not present	-	
1,3-Bis(trifluoromethyl)benzene	402-31-3	Present	Active	
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	Present	Active	PMN

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

### 15.2. International regulations

No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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### SECTION 16: Other information

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Full text of H-phrases	
H226	Flammable liquid and vapor
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H335	May cause respiratory irritation

#### Indication of changes:

new version.

Safety Data Sheet (SDS), USA

The above information is believed to be correct but shall be used only as a guide and is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. Axoft Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. Do not use Axoft materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless under a written contract.  
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