



Safety Data Sheet

Revision Date: 10/21/2024

SECTION 1: IDENTIFICATION

Product Name

OptiFlex IS1061 ISO

A/ISO Component

Recommended Use

Polyurethane Component

Company Information

FSI
13389 Lakefront Drive
Earth City, MO 63045
www.fsi.co

EMERGENCY RESPONSE

HEALTH & SAFETY

First Aid • Treatment
Call ProPharma Group Co.
FSI Dedicated No.
800-391-2138

CHEMICAL SPILLS

Call CHEMTREC
United States: **800-424-9300**
International: **+1 703-527-3887**
www.chemtrec.com
Reference: CCN8678

SECTION 2: HAZARDS IDENTIFICATION

Hazards Identification

Skin irritation	Category 2
Skin sensitization	Category 1
Eye irritation	Category 2B
Acute toxicity	Category 4 - Inhalation
Specific target organ toxicity – single exposure	Category 3 (respiratory protection)
Specific target organ toxicity – repeated exposure	Category 3 (respiratory tract)
Respiratory sensitization	Category 1

Label Elements

Hazard pictograms



Signal word

DANGER

Hazards

Causes skin and eye irritation.
May cause an allergic skin reaction.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
Use personal protective equipment as required.
In case of inadequate ventilation wear respiratory protection.



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Response	IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.
Other hazards	No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Weight %
4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8	60-80
Polymeric Diphenylmethane Diisocyanate (pMDI)	9016-87-9	20-40

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

General advice: Provide this SDS to medical personnel for treatment. Move out of dangerous area. Do not leave the victim unattended. Get medical attention immediately if symptoms occur. Show this safety data sheet to the doctor in attendance. First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.

Skin contact: If direct skin contact with isocyanates occurs, immediately remove contaminated clothing and shoes. Wipe off the isocyanate product from the skin using dry towels or other similar absorbent fabric. Wash with soap and warm water for 15 minutes

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention.

Ingestion: Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

SECTION 5: FIREFIGHTING MEASURE

Suitable extinguishing media: Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

Unsuitable extinguishing media: High volume water jet

Specific hazards:

Unusual Fire and Explosion Hazards:



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Firefighting procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended but may be applied in large quantities as a fine spray when other extinguishing agents are not available. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Protective Equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency release measures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. If available, use foam to smother or suppress. Refer to section 7 for additional precautionary measures. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Containment and cleanup: Contain spilled material if possible. Absorb with materials such as: dirt, vermiculite, sand and clay. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: metal drums, plastic drums and polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 - 8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container tightly closed. See Section 8, Exposure Controls/Personal Protection. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store in a dry place. Protect from atmospheric moisture. Do not store product contaminated with water to prevent potential hazardous reaction. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage stability:

Storage period: 6 months

Storage temperature: 15°-38°C (59°-100°F)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	Type	Value
4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)	OSHA PEL	CLV 0.02 ppm
	ACGIH TLV	TWA value 0.005 ppm



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Exposure controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Personal protective equipment:

Eye/Face protection

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

Skin protection

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

In emergency, non-routine and unknown exposure situations, including confined space entries, a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply, should be used.

Other protection

Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. Wash hands before breaks and at the end of workday.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Color	Light yellow
Odor	Musty
Odor Threshold	No data available
pH	No data available
Relative evaporation rate (BuAc=1)	No data available
Melting point	No data available
Freezing point	No data available
Boiling point (1 atm)	No data available
Flash point	>150°C (>302°F) Method: closed cup
Auto-ignition temperature	No data available
Decomposition temperature	No data available



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Flammability (solid, gas)	Not applicable
Vapor pressure @ 25 °C (77 °F)	< 0.0001 mmHg
Relative vapor density @ 20°C (68 °F)	No data available
Specific Gravity @ 25°C (77 °F)	1.22
Water Solubility	Insoluble - Reacts slowly with water to liberate CO ₂ gas
Viscosity, dynamic @ 25°C (77°F)	50-150 cP
Explosive properties	No data available

NOTE: Physical data should not be construed as a specification

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization, Moisture (water and high humidity) or high heat (temperatures greater than 350 F (177C)) can cause pressure build-up with possible explosive rupture.

Chemical stability: Stable under normal conditions of use and storage.

Possible hazardous reactions: Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. reacts with acids. Reacts with alkalis. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to avoid: Extremes of temperature and direct sunlight. Exposure to air or moisture over prolonged periods.

Materials to Avoid: Water, Amines, Strong bases, Alcohols, Copper alloys

Hazardous decomposition products: By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of exposure:	Inhalation, ingestion, skin or eye contact.
Acute oral toxicity:	Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Typical for this family of materials. LD ₅₀ , Rat, >10,000 mg/kg
Acute dermal toxicity	Prolonged skin contact is unlikely to result in absorption of harmful amounts. Typical for this family of materials. LD ₅₀ , Rabbit, >9,400 mg/kg
Acute inhalation toxicity:	At room temperature, vapors are minimal due to low volatility. However, certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation and other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates. LC ₅₀ , Rat, 4 Hour, dust/mist, 0.49 mg/l For similar material(s): 2,4'-Diphenylmethane diisocyanate (CAS 5873-54-1). LC ₅₀ , Rat, 4 Hour, Aerosol, 0.31 mg/l For similar material(s): 4,4'-Methylenediphenyl diisocyanate (CAS 101-68-8). LC ₅₀ , Rat, 1 Hour, Aerosol, 2.24 mg/l
Skin corrosion/Irritation:	Prolonged contact may cause slight skin irritation with local redness. May stain skin
Serious eye damage/eye irritation:	May cause moderate eye irritation. May cause slight temporary corneal injury.



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Sensitization:	Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.
Specific target organ systemic toxicity (Single Exposure):	May cause respiratory irritation. Route of Exposure: Inhalation Target Organs: Respiratory Tract
Carcinogenicity:	Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/ Polymeric MDI (6 mg/m ³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.
Teratogenicity:	In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.
Reproductive toxicity:	No relevant data found.
Mutagenicity:	Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other invitro studies were negative. Animal mutagenicity studies were predominantly negative
Aspiration hazard:	Based on physical properties, not likely to be an aspiration hazard

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	
Acute toxicity to fish:	The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Danio rerio (zebra fish), static test, 96 Hour, >1,000 mg/l, OECD Test Guideline 203 or Equivalent
Acute Toxicity to Aquatic Invertebrates:	EC50, Daphnia magna (Water flea), static test, 24 Hour, >1,000 mg/l, OECD Test Guideline 202 or Equivalent
Acute Toxicity to Algae/Aquatic Plants:	NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent
Toxicity to Bacteria:	EC50, activated sludge, static test, 3 Hour, Respiration rates., >100 mg/l
Toxicity to Soil-Dwelling Organisms:	EC50, Eisenia fetida (earthworms), 14 d, >1,000 mg/kg
Toxicity to Terrestrial Plants:	EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l
Persistence and Degradability:	
Biodegradability:	In the aquatic and terrestrial environment, material reacts with water forming



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	predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.
10-day Window:	Not applicable
Biodegradation:	0%
Exposure time:	28 days
Method:	OECD Test Guideline 302°C or Equivalent
Bioaccumulative potential:	
Bioaccumulation:	Bioconcentration potential is low ($BCF < 100$ or $\text{Log Pow} < 3$). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.
Bioconcentration factor (bcf):	92 <i>Cyprinus carpio</i> (Carp) 28 days
Mobility in Soil:	In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

SECTION 13: DISPOSAL CONSIDERATIONS

Cylinder/pressure vessels:	Return to FSI
Disposal methods:	Do not dump into any sewers, on the ground, or into any body of water. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS Section 3: Composition information. For unused & uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information-SDS Section 7, Stability & Reactivity Information-SDS Section 10, Regulatory Information-SDS Section 15.

SECTION 14: TRANSPORT INFORMATION

Land Transport (DOT)	When in individual containers of less than the Product RQ, this material is not regulated as dangerous goods
UN Shipping Name:	OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. (contains Methylene Diphenyl Diisocyanate (MDI))
UN #:	UN 3082
Hazard Class:	9
Packing Group:	III
Hazard Label	Class 9
DOT Regulated Components:	4 ,4'-Diphenylmethane Diisocyanate (MDI)
Reportable Quantity (RQ):	3,259 kg (7,186 lb)



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Sea Transport (IMDG):

Not regulated as dangerous goods

Air transport (IATA):

Not regulated as dangerous goods

SECTION 15: REGULATORY INFORMATION

OSHA Hazard Communication Standard:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312:

Acute Health Hazard
Chronic Health Hazard
Reactivity Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313:

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372

Component	CASRN
4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103:

Pennsylvania Worker and Community Right-To-Know Act:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

United States TSCA Inventory (TSCA):

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

SECTION 16: OTHER INFORMATION

Product literature: Additional information on this product may be obtained by calling your sales or customer service contact.

Product Stewardship: FSI and its subsidiaries are committed to stewardship and have a concern for, the health and safety for all individuals who come in contact with its products, as well as the environment. This philosophy is a foundation on which we assess information to appropriately protect individuals and preserve our environment. Success of stewardship rests with each and every individual involved in the cradle to grave life cycle of our products.

FSI supports and follows Responsible Care Guiding Principles.

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The information and recommendations set forth herein are believed to be accurate as of the date hereof. FSI makes no warranty with respect thereto and disclaims any liability from reliance thereon.



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Revision Date: 10/21/2024

SECTION 1: IDENTIFICATION

Product Name

OptiFlex IS1061 POLYOL

B/POLYOL Component

Recommended Use

Polyurethane Component

Company Information

FSI
13389 Lakefront Drive
Earth City, MO 63045
www.fsi.co

EMERGENCY RESPONSE

HEALTH & SAFETY

First Aid • Treatment
Call ProPharma Group Co.
FSI Dedicated No.
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CHEMICAL SPILLS

Call CHEMTREC
United States: **800-424-9300**
International: **+1 703-527-3887**
www.chemtrec.com
Reference: CCN8678

SECTION 2: HAZARDS IDENTIFICATION

Hazards Identification

Skin irritation

Category 2

Eye irritation

Category 2A

Label Elements

Hazard pictograms



Signal word

WARNING

Hazards

May cause skin irritation.
Causes eye irritation.

Precautionary statements

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray.
Use personal protective equipment as required.
Wash skin thoroughly after handling.
Wear protective gloves.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in position comfortable for breathing.
IF IN EYES: 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.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Disposal

Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.

Other hazards

No data available



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	%
Triethanolamine	102-71-6	3-8
(Z)-1,1,1,4,4,4-Hexafluoro-2-butene	692-49-9	0-4
Trans-1-Chloro-3,3,3-trifluoropropene	102687-65-0	4-10

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

General advice: Provide this SDS to medical personnel for treatment

Inhalation: Remove exposed individual(s) to fresh air for 20 minutes. Consult a physician / poison center if individual's condition declines or if symptoms persist.

Skin contact: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye contact: Rinse with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If conscious give 2 glasses of water to dilute. Get medical attention.

Notes to Physician: No specific treatment. Treat supportively and symptomatically

SECTION 5: FIREFIGHTING MEASURE

Suitable extinguishing media: Foam, alcohol foam, carbon dioxide, dry chemical, or water fog.

Unsuitable extinguishing media: Not determined

Specific hazards: May emit toxic or irritating fumes if burned. Sealed containers may build pressure if heated. If possible, spray containers exposed to fire with water to keep cool.

Hazardous Combustion Products: Carbon oxides, Nitrogen Oxides

Unusual Fire and Explosion Hazards: none

Firefighting procedures: Heated containers may rupture. Use water spray to keep fire-exposed containers cool.

Protective Equipment for firefighters: Firefighters should wear full protective clothing to guard against exposure to toxic and irritating fumes as well as a self-contained breathing apparatus with full face piece operated in a positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency release measures: Use personal protective equipment

Environmental precautions: Prevent from entering soil, ditches, sewers, waterways and/or groundwater.

Containment and cleanup: Prevent further leakage or spillage if safe to do so. Soak up and contain spill with an inert (i.e. vermiculite, dry sand or earth) absorbent material. Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container tightly closed. See Section 8, Exposure Controls/Personal Protection. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store in a dry place. Protect from atmospheric moisture. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage period: 6 months

Storage temperature: 15°-30°C (59°-86°F)



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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	Type	Value
trans-1-Chloro-3,3,3-trifluoropropene	TWA	800 ppm
Triethanolamine	TWA	5 mg/m ³

Exposure controls: (Based on A/ISO component, See Section 8, pages 3-4) Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Personal protective equipment:

Eye/Face protection	Chemical goggles
Skin protection	Chemical resistant gloves
Respiratory protection	Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (compressed breathing air or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply.
Other protection	Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Color	White
Odor	Slight
Odor Threshold	Not determined
pH	Not applicable
Melting point	Not applicable
Freezing point	Not applicable
Boiling point (1 atm)	Decomposes before boiling
Flash point	≥80°C (≥176°F) Method: closed cup
Auto-ignition temperature	Not determined
Decomposition temperature	Not determined
Flammability (solid, gas)	Not applicable
Vapor pressure @ 25 °C (77°F)	Not determined
Relative vapor density @ 20°C (68°F)	Not applicable



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Specific Gravity @ 25°C (77°F)	1.03
Water Solubility	Not applicable
Viscosity, dynamic @ 25°C (77°F)	750-1050 cP
Explosive properties	Not applicable
NOTE: Physical data should not be construed as a specification	

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Polyols and polyol blends react with isocyanates

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possible hazardous reactions: Not applicable

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatible materials: Polyols and polyol blends react with isocyanates.

Hazardous decomposition products: CO, CO₂, NO_x

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Exposure: Inhalation, ingestion, skin or eye contact.

Acute Toxicity:

Triethanolamine

LD₅₀, Rat, 6,400 mg/kg

(Z)-1,1,1,4,4,4-Hexafluoro-2-butene

LC₅₀, Rat, >690 mg/l

Trans-1-Chloro-3,3,3-trifluoropropene

LC₅₀, Rat, 120,000 ppm

Chronic Toxicity: May cause skin/eye irritation.

Toxicological Characteristics: May cause skin irritation.

Chronic Effects: May cause skin irritation; avoid contact with eyes.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not a marine pollutant.

Persistence and Degradability: No known significant effects.

Bio accumulative Potential: Does not bioaccumulate.

Mobility in Soil: Adsorption to solid soil phase is not expected.

SECTION 13: DISPOSAL CONSIDERATIONS

Cylinder/Pressure Vessels: Return to FSI

Disposal Methods: Do not dump into any sewers, on the ground, or into any body of water. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the



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responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS Section 3: Composition information. For unused & uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information-SDS Section 7, Stability & Reactivity Information-SDS Section 10, Regulatory Information-SDS Section 15.

SECTION 14: TRANSPORT INFORMATION

Land Transport (DOT)	Not regulated as dangerous goods
Sea Transport (IMDG)	Not regulated as dangerous goods
Vessel Transport (IATA)	Not regulated as dangerous goods

SECTION 15: REGULATORY INFORMATION

Inventory Status:	All components TSCA listed.
US Regulations:	No ingredients listed. Not Applicable.
US SARA Act Title 3 Section 313:	No ingredients listed. Not Applicable
California Proposition 65:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
Pennsylvania Right-To-Know:	Trans-1-Chloro-3,3,3-trifluoropropene, CAS 102687-65-0 Triethanolamine, CAS 102-71-6
New Jersey Right-To-Know:	Trans-1-Chloro-3,3,3-trifluoropropene, CAS 102687-65-0

SECTION 16: OTHER INFORMATION

Product literature: Additional information on this product may be obtained by calling your sales or customer service contact.

Product Stewardship: FSI and its subsidiaries are committed to stewardship and have a concern for, the health and safety for all individuals who come in contact with its products, as well as the environment. This philosophy is a foundation on which we assess information to appropriately protect individuals and preserve our environment. Success of stewardship rests with each and every individual involved in the cradle to grave life cycle of our products. FSI supports and follows Responsible Care Guiding Principles.

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