

SAFETY DATA SHEET

Creation Date 10-Nov-2009 Revision Date 19-Dec-2025 Revision Number 5

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name [Bis(2-methoxyethyl)amino]sulfur trifluoride, 50% solution in toluene

Cat No.: AC368960000; AC368960050; AC368960250; AC368961000

Synonyms Deoxo-Fluor

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Flammable liquids
Category 2
Acute oral toxicity
Category 3
Skin Corrosion/Irritation
Category 1 A
Serious Eye Damage/Eye Irritation
Category 1
Reproductive Toxicity
Category 2
Specific target organ toxicity (single exposure)
Category 3

Target Organs - Central nervous system (CNS), Respiratory system.

Specific target organ toxicity - (repeated exposure) Category 2

Target Organs - Neurological effects, Eyes, Ears.

Aspiration Toxicity Category 1

Label Elements

Signal Word

[Bis(2-methoxyethyl)amino]sulfur trifluoride, 50% solution in toluene

Danger

Hazard Statements

Highly flammable liquid and vapor

Toxic if swallowed

May be fatal if swallowed and enters airways

Causes severe skin burns and eye damage

May cause respiratory irritation

May cause drowsiness or dizziness

Suspected of damaging the unborn child

May cause damage to organs through prolonged or repeated exposure



Precautionary Statements

Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Do not breathe dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground and bond container and receiving equipment

Use explosion-proof electrical/ventilating/lighting equipment

Keep cool

Wear protective gloves/protective clothing/eye protection/face protection

Take action to prevent static discharges

Use non-sparking tools

Response

Immediately call a POISON CENTER or doctor

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

Take off contaminated clothing and wash before reuse

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing **Ingestion**

Do NOT induce vomiting

Rinse mouth

Fire

In case of fire: Use CO2, dry chemical, or foam to extinguish

Storage

Store locked up

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

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

Reacts violently with water.

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Hazards resulting from a reaction with other chemicals under normal conditions of use

WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/information on Ingredients

Component	CAS No	Weight %		
Toluene	108-88-3	50		
Sulfur,	202289-38-1	50		
trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminat				
okappa.N]-, (T-4)-				

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Eye ContactRinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In

the case of contact with eyes, rinse immediately with plenty of water and seek medical

advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Inhalation If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim

ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove to fresh air. Immediate medical attention is required. Risk of serious damage to the lungs (by

aspiration).

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting

occurs naturally, have victim lean forward.

Most important symptoms and

effects

Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and

vomiting: Product is a corrosive material. Use of gastric lavage or emesis is

contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of

perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool

closed containers.

Unsuitable Extinguishing Media DO NOT USE WATER

Flash Point 4 °C / 39.2 °F

Method - No information available

Autoignition Temperature No information available

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Explosion Limits

No data available Upper Lower No data available Sensitivity to Mechanical Impact No information available Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO2). Nitrogen oxides (NOx). Sulfur oxides. Hydrogen fluoride.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health **Flammability** Instability Physical hazards 3 W 3

Accidental release measures

Personal Precautions

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Do not flush into surface water or sanitary sewer system.

Up

Methods for Containment and Clean Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and Storage

Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage.

Flammables area. Keep away from heat, sparks and flame. Keep refrigerated. Keep away from water or moist air. Store under an inert atmosphere. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Incompatible Materials. Strong oxidizing agents. Strong bases. Alcohols.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Toluene	TWA: 20 ppm	(Vacated) TWA: 100 ppm	IDLH: 500 ppm	TWA: 20 ppm
		(Vacated) TWA: 375 mg/m ³	REL = 100 ppm (TWA)	
		Ceiling: 300 ppm	REL = $375 \text{ mg/m}^3 \text{ (TWA)}$	
		(Vacated) STEL: 150 ppm	STEL: 150 ppm	
		(Vacated) STEL: 560 mg/m ³	STEL: 560 mg/m ³	
		TWA: 200 ppm	_	

<u>Legend</u>

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering MeasuresUse only under a chemical fume hood. Ensure that eyewash stations and safety showers

are close to the workstation location. Use explosion-proof electrical/ventilating/lighting

equipment. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by

OSHA's eve and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard

EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Remarks

Method

Recommended Filter type: low boiling organic solvent. Type AX. Brown. conforming to EN371. or. Organic gases and

vapours filter. Type A. Brown. conforming to EN14387.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Physical State Liquid

Color Yellow-orange
Odor Characteristic

Odor Threshold No information available

Property Values

Melting Point/Range
No data available

Softening Point No data available
Boiling Point/Range No information available

Flash Point 4 °C / 39.2 °F Method - No information available

Flammability (liquid) Highly flammable On basis of test data

Flammability (solid,gas)

Not applicable

Liquid

Explosion Limits No data available

Autoignition Temperature

Decomposition Temperature

No data available

No data available

pH No information available
Viscosity No data available
Water Solubility No information available
Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Toluene 2.73

Vapor Pressure No data available

Density / Specific Gravity 1.200

Bulk DensityNot applicableLiquidVapor DensityNo data available(Air = 1.0)

Particle characteristics Not applicable (liquid)

Other Information

Molecular Formula C6 H14 F3 N O2 S

[Bis(2-methoxyethyl)amino]sulfur trifluoride, 50% solution in toluene

Molecular Weight 221.24

Explosive Properties Vapors may form explosive mixtures with air

10. Stability and reactivity

Yes **Reactive Hazard**

Stability Reacts violently with water.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and

sources of ignition. Exposure to moist air or water. Exposure to moisture.

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Incompatible Materials Strong oxidizing agents, Strong bases, Alcohols

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NOx), Sulfur oxides,

Hydrogen fluoride

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing. Reacts violently with water.

Toxicological information

Information on expected route of exposure

Inhalation Avoid breathing vapors or mists.

May be harmful if swallowed. Harmful if swallowed. Potential for aspiration if swallowed. Ingestion Eyes

Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including

blindness. Vapor may cause irritation. Risk of serious damage to eyes.

Skin Avoid contact with skin. Causes burns. Skin Corrosion/Irritation. Contact with moist skin

may cause skin burns. Prolonged skin contact may defat the skin and produce dermatitis.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation		
Toluene	> 5000 mg/kg (Rat)	LD50 = 12000 mg/kg (Rabbit)	26700 ppm (Rat) 1 h		

Toxicologically Synergistic

Products

No information available

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico

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Toluene	108-88-3	Not listed				
Sulfur,	202289-38-1	Not listed				
trifluoro[2-methoxy-N-(
2-methoxyethyl)ethana						
minatokappa.N]-,						
(T-4)-						

(g) reproductive toxicity; Category 2

Teratogenicity Possible risk of harm to the unborn child.

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; Category 2

Target Organs Neuropsychological effects, Eyes, Ears.

(j) aspiration hazard; Category 1

Other Adverse Effects The toxicological properties have not been fully investigated.

delayed

Symptoms / effects,both acute and Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

The toxicological properties have not been fully investigated. **Other Adverse Effects**

This product does not contain any known or suspected endocrine disruptors. **Endocrine Disrupting Properties**

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Toluene	EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50 = 19.7 mg/L 30 min	EC50: = 11.5 mg/L, 48h (Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility

Component	log Pow
Toluene	2.73

13. Disposal considerations

[Bis(2-methoxyethyl)amino]sulfur trifluoride, 50% solution in toluene

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes		
Toluene - 108-88-3	U220	-		

14. Transport information

DOT

UN-No UN3286

Proper Shipping Name Flammable liquid, toxic, corrosive, n.o.s.

Technical Shipping Name ((BIS(2-METHOXYETHYL)AMINO)SULFUR TRIFLUORIDE, 2.7M SOLUTION IN

TOLUENE)

Hazard Class 3 Subsidiary Hazard Class 6.1; 8 Packing Group II

TDG

UN-No UN3286

Proper Shipping Name Flammable liquid, toxic, corrosive, n.o.s.

Technical Shipping Name ((BIS(2-METHOXYETHYL)AMINO)SULFUR TRIFLUORIDE, 2.7M SOLUTION IN

TOLUENE)

Hazard Class 3
Subsidiary Hazard Class 6.1; 8
Packing Group II

<u>IATA</u>

UN-No UN3286

Proper Shipping Name FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.*

Technical Shipping Name ((BIS(2-METHOXYETHYL)AMINO)SULFUR TRIFLUORIDE, 2.7M SOLUTION IN

TOLUENE)

Hazard Class 3 Subsidiary Hazard Class 6.1, 8 Packing Group II

IMDG/IMO

UN-No UN3286

Proper Shipping Name Flammable liquid, toxic, corrosive, n.o.s.

Technical Shipping Name ((BIS(2-METHOXYETHYL)AMINO)SULFUR TRIFLUORIDE, 2.7M SOLUTION IN

TOLUENE)

Hazard Class 3 Subsidiary Hazard Class 6.1, 8 Packing Group II

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Toluene	108-88-3	Χ	ACTIVE	-
Sulfur, trifluoro[2-methoxy-N-(2-methoxyet hyl)ethanaminatokappa.N]-, (T-4)-	202289-38-1	X	ACTIVE	PMN

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

PMN - Indicates a commenced PMN substance

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Not applicable

Substances & Mixtures, Under TSCA Section 6(h) (PBT)

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Toluene	108-88-3	Χ	-	203-625-9	Χ	Χ	Χ	Х	Χ	KE-33936
Sulfur,	202289-38-1	-	Х	-	-	-		-	Х	-
trifluoro[2-methoxy-N-(2-methoxyet										
hyl)ethanaminatokappa.N]-,										
(T-4)-										

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Toluene	108-88-3	50	1.0 %	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	
Toluene	X	1000 lb	X	X	

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors Class 2 Ozone De	
Toluene	X		-

OSHA - Occupational Safety and

Health Administration

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Toluene	1000 lb	-	1000 lb 454 ka

California Proposition 65

This product contains the following Proposition 65 chemicals.

Component		CAS No	California Prop. 65	Prop 65 NSRL Category	
	Toluene	108-88-3	Developmental	-	Developmental

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U.S. State Right-to-Know

Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Toluene	X	Х	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland

Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Toluene	108-88-3	-	Use restricted. See entry 48. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details)	-
Sulfur, trifluoro[2-methoxy-N-(2-methoxyeth yl)ethanaminatokappa.N]-, (T-4)-	202289-38-1	-	-	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Toluene	108-88-3	Listed	Not applicable	Not applicable	Not applicable
Sulfur, trifluoro[2-methoxy-N-(2-meth oxyethyl)ethanaminatokappa .N]-, (T-4)-		Not applicable	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive	Seveso III Directive	Rotterdam	Basel Convention
		(2012/18/EC) -	(2012/18/EC) -	Convention (PIC)	(Hazardous Waste)

		Qualifying Quantities for Major Accident Notification	Qualifying Quantities for Safety Report Requirements		
Toluene	108-88-3	Not applicable	Not applicable	Not applicable	Annex I - Y42
Sulfur, trifluoro[2-methoxy-N-(2-meth oxyethyl)ethanaminatokappa .N]-, (T-4)-		Not applicable	Not applicable	Not applicable	Not applicable

16. Other Information

Prepared By Product stewardship (Regulatory Affairs)

Thermo Fisher Scientific

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Revision Summary Updated to the U.S. Department of Labor's Occupational Safety and Health Administration

(OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200,

2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text

End of SDS