

SAFETY DATA SHEET

Creation Date 24-Nov-2010 Revision Date 13-Aug-2024 Revision Number 9

1. Identification

Product Name Boron trichloride, 1M solution in methylene chloride

Cat No.: AC176680000; AC176681000; AC176688000

Synonyms No information available

Recommended Use Uses advised against

Laboratory chemicals.

Food, drug, pesticide or biocidal product use. This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

After February 3, 2025, this chemical substance (as defined in TSCA section 3(2))/ product cannot be distributed in commerce to retailers. After January 28, 2026, this chemical substance (as defined in TSCA section 3(2))/product is and can only be distributed in commerce or processed with a concentration of methylene chloride equal to or greater than 0.1% by weight for the following purposes: (1) Processing as a reactant; (2) Processing for incorporation into a formulation, mixture, or reaction product; (3) Processing for repackaging; (4) Processing for recycling; (5) Industrial or commercial use as a laboratory chemical; (6) Industrial or commercial use as a bonding agent for solvent welding; (7) Industrial and commercial use as a paint and coating remover from safety critical, corrosion sensitive components of aircraft and spacecraft; (8) Industrial and commercial use as a processing aid; (9) Industrial and commercial use for plastic and rubber products manufacturing; (10) Industrial and commercial use as a solvent that becomes part of a formulation or mixture, where that formulation or mixture will be used inside a manufacturing process, and the solvent (methylene chloride) will be reclaimed; (11) Industrial and commercial use in the refinishing for wooden furniture, decorative pieces, and architectural fixtures of artistic, cultural or historic value until May 8, 2029; (12) Industrial and commercial use in adhesives and sealants in aircraft, space vehicle, and turbine applications for structural and safety critical non-structural applications until May 8, 2029; (13) Disposal; and (14) Export.

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

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

Revision Date 13-Aug-2024

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity Category 3 Acute Inhalation Toxicity - Vapors Category 3 Skin Corrosion/Irritation Category 1 B Serious Eve Damage/Eve Irritation Category 1 Carcinogenicity Category 1B Specific target organ toxicity (single exposure) Category 3

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

Label Elements

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage May cause respiratory irritation May cause drowsiness or dizziness May cause cancer Toxic if swallowed or if inhaled



Precautionary Statements

Prevention

Obtain special instructions before use

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

Use personal protective equipment as required

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

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

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

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

Wash contaminated clothing before reuse

Eves

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

Rinse mouth

Do NOT induce vomiting

Storage

Store locked up

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

Disposal

Revision Date 13-Aug-2024

Dispose of contents/container to an approved waste disposal plant Hazards not otherwise classified (HNOC)

Other hazards

Contains a known or suspected endocrine disruptor. WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Methylene chloride	75-09-2	91
Boron trichloride	10294-34-5	9

4. First-aid measures

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

required.

Eye Contact Rinse immediately with plenty of water, also under the evelids, for at least 15 minutes. In

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

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.

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

Most important symptoms and

effects

Causes burns by all exposure routes. 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: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system

depression

Notes to Physician Treat symptomatically

Fire-fighting measures

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media Water

Flash Point No information available No information available Method -

Autoignition Temperature

Explosion Limits

No information available

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.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of boron. Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen chloride gas.

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

HealthFlammabilityInstabilityPhysical hazards412N/A

6. 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.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Do **up** not expose spill to water.

	7. Handling and storage
Handling	Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. 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.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water or moist air. Keep refrigerated. Store under an inert atmosphere. Incompatible Materials. Water. Strong oxidizing agents. Strong bases. Alcohols.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm	IDLH: 2300 ppm	TWA: 50 ppm
		(Vacated) STEL: 2000 ppm		
		(Vacated) Ceiling: 1000 ppm		
		TWA: 25 ppm		
		STEL: 125 ppm		
Boron trichloride	Ceiling: 0.7 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 Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations

and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Tight sealing safety goggles. Face protection shield.

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.

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

Physical State Liquid Appearance Colorless

OdorNo information availableOdor ThresholdNo information availablepHNo information available

Melting Point/Range No data available

Boiling Point/Range
No information available
Flash Point
Evaporation Rate
No information available
No information available

Flammability (solid,gas) Not applicable

Flammability or explosive limits
Upper
No data available
No data available

Vapor Pressure9.05 psi @ 20 °CVapor DensityNo information available

Specific Gravity 1.33

Solubility Reacts violently with water

Partition coefficient; n-octanol/water No data available

Autoignition TemperatureNo information availableDecomposition TemperatureNo information availableViscosityNo information available

Molecular Formula B Cl3
Molecular Weight 117.17

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture.

Incompatible Materials Water, Strong oxidizing agents, Strong bases, Alcohols

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO2), Oxides of boron, Thermal decomposition

can lead to release of irritating gases and vapors, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

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

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Category 3. ATE = 50 - 300 mg/kg. Based on ATE data, the classification criteria are not

met. ATE > 2000 mg/kg. Category 2. ATE = 5 - 50 mg/kg.

Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50 Category 3. ATE = 2 - 10 mg/l. Category 2. ATE = 0.5 - 2 mg/l.

Component Information

	Component	emponent LD50 Oral LD50 Dermal		LC50 Inhalation
Γ	Methylene chloride	Methylene chloride > 2000 mg/kg (Rat) > 2000 mg/kg (Ra		53 mg/L (Rat) 6 h
1				76000 mg/m³ (Rat) 4 h
Γ	Boron trichloride Not listed		Not listed	LC50 = 2541 ppm (Rat) 1 h

Toxicologically Synergistic

No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation CAUSES (SEVERE) EYE BURNS Causes skin burns

Sensitization No information available

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

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably	A3	X	A3
			Anticipated			
Boron trichloride	10294-34-5	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human

Carcinogen

ACGIH: (American Conference of Governmental Industrial

Mexico - Occupational Exposure Limits - Carcinogens

Hygienists)

A1 - Known Human Carcinogen A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

A1 - Confirmed Human Carcinogen A2 - Suspected Human Carcinogen A3 - Confirmed Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS) Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

delayed

Symptoms / effects, both acute and 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: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness,

nausea and vomiting: Causes central nervous system depression

Endocrine Disruptor Information No information available

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

12. Ecological information

Ecotoxicity

Do not empty into drains. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas:	EC50: 1 mg/L/24 h	EC50: 140 mg/L/48h
		LC50:193 mg/L/96h	EC50: 2.88 mg/L/15 min	_

Persistence and Degradability

Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation

No information available.

Mobility

. Is not likely mobile in the environment.

Component	log Pow
Methylene chloride	1.25

13. Disposal considerations

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	
Methylene chloride - 75-09-2	U080	-	

14. Transport information

DOT

UN-No UN3094

Proper Shipping Name Corrosive liquid, water-reactive, n.o.s.

Technical Name Boron trichloride

Hazard Class 8
Subsidiary Hazard Class 4.3
Packing Group ||

TDG

UN-No UN3094

Proper Shipping Name Corrosive liquid, water-reactive, n.o.s.

Hazard Class 8
Subsidiary Hazard Class 4.3
Packing Group ||

<u>IATA</u>

UN-No UN3094

Proper Shipping Name Corrosive liquid, water-reactive, n.o.s.

Hazard Class 8
Subsidiary Hazard Class 4.3
Packing Group ||

IMDG/IMO

UN-No UN3094

Proper Shipping Name Corrosive liquid, water-reactive, n.o.s.

Hazard Class 8
Subsidiary Hazard Class 4.3
Packing Group ||

15. Regulatory information

United States of America Inventory

	Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
	Methylene chloride	75-09-2	X	ACTIVE	R
ı	Boron trichloride	10294-34-5	Χ	ACTIVE	-

Legend:

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

- X Listed
- '-' Not Listed
- R Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

Section 6(a) of the Toxic Substances Control Act (TSCA)

This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

After February 3, 2025, this chemical substance (as defined in TSCA section 3(2))/ product cannot be distributed in commerce to retailers. After January 28, 2026, this chemical substance (as defined in TSCA section 3(2))/product is and can only be distributed in commerce or processed with a concentration of methylene chloride equal to or greater than 0.1% by weight for the following purposes: (1) Processing as a reactant; (2) Processing for incorporation into a formulation, mixture, or reaction product; (3) Processing for repackaging; (4) Processing for recycling; (5) Industrial or commercial use as a laboratory chemical; (6) Industrial or commercial use as a bonding agent for solvent welding; (7) Industrial and commercial use as a paint and coating remover from safety critical, corrosion sensitive components of aircraft and spacecraft; (8) Industrial and commercial use as a processing aid; (9) Industrial and commercial use for plastic and rubber products manufacturing; (10) Industrial and commercial use as a solvent that becomes part of a formulation or mixture, where that formulation or mixture will be used inside a manufacturing process, and the solvent (methylene chloride) will be reclaimed; (11) Industrial and commercial use in the refinishing for wooden furniture, decorative pieces, and architectural fixtures of artistic, cultural or historic value until May 8, 2029; (12) Industrial and commercial use in adhesives and sealants in aircraft, space vehicle, and turbine applications for structural and safety critical non-structural applications until May 8, 2029; (13) Disposal; and (14) Export.

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

Component	CAS No	TSCA 12(b) - Notices of Export
Methylene chloride	75-09-2	Section 6

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
Methylene chloride	75-09-2	Х	-	200-838-9	Χ	Х	Х	Х	Х	KE-23893
Boron trichloride	10294-34-5	X	-	233-658-4	Х	Х	Х	Х	Х	KE-03539

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
Methylene chloride	75-09-2	91	0.1 %	-
Boron trichloride	10294-34-5	9	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
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors

Methylene chloride	X	-

OSHA - Occupational Safety and

Not applicable

Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL	-
	12.5 ppm Action Level	
	25 ppm TWA	
Boron trichloride	-	TQ: 2500 lb

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)
Methylene chloride	1000 lb	-	1000 lb 454 kg
Boron trichloride	-	500 lb	-

California Proposition 65

This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 μg/day	Carcinogen
			50 µg/day	

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X
Boron trichloride	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 contains the following DHS chemicals:

Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard		
Boron trichloride	Release STQs - 5000lb		
	Theft STQs - 45lb		

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 Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methylene chloride	75-09-2	-	Use restricted. See entry 59. (see link for restriction details)	-

			Use restricted. See entry 75. (see link for restriction details)	
Boron trichloride	10294-34-5	-	Use restricted. See entry 75. (see link for restriction details)	-

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)
Methylene chloride	75-09-2	Listed	Not applicable	Not applicable	Not applicable
Boron trichloride	10294-34-5	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 (2012/18/EC) -	Seveso III Directive (2012/18/EC) -	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
		Qualifying Quantities for Major Accident Notification	for Safety Report Requirements		
Methylene chloride	75-09-2	Not applicable	Not applicable	Not applicable	Annex I - Y45
Boron trichloride	10294-34-5	Not applicable	Not applicable	Not applicable	Not applicable

Prepared By Regulatory Affairs

Thermo Fisher Scientific

Email: EMSDS.RA@thermofisher.com

 Creation Date
 24-Nov-2010

 Revision Date
 13-Aug-2024

 Print Date
 13-Aug-2024

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard

replacing the current legislation under 29 CFR 1910.1200 to align with the Globally

Harmonized System of Classification and Labeling of Chemicals (GHS).

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