Boron Trifluoride

000000000197

Version 3.5 Revision Date 02/02/2026 Print Date 03/11/2026

SECTION 1. IDENTIFICATION

Product name	:	Boron Trifluoride
Number	:	000000000197
Product Use Description	:	Catalyst, Chemical-technical application
Manufacturer or supplier's details	:	Solstice Advanced Materials US, Inc. 115 Tabor Road Morris Plains, NJ 07950-2546
For more information call	:	800-522-8001 +1-973-455-6300(Monday-Friday, 9:00am-5:00pm)
In case of emergency call	:	**Medical: 1 866-479-8788 or +1 303-739-1378**
	:	**Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
	:	
	:	(24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	Compressed gas
Color	:	Clear in an inert atmosphere. Forms a dense white cloud when exposed to moisture.
Odor	:	Pungent odor with a stinging effect on eyes and skin.

Classification of the substance or mixture

Classification of the substance or mixture	:	Gases under pressure, Compressed gas Acute toxicity, Category 2, Inhalation Skin corrosion, Category 1A Serious eye damage, Category 1 Specific target organ toxicity - single exposure, Category 3, respiratory tract irritation Specific target organ toxicity - repeated exposure, Category 2,

Kidney
Simple Asphyxiant

GHS Label elements, including precautionary statements

Symbol(s) :

Signal word : Danger

Hazard statements :	H280	Contains gas under pressure; may explode if heated.
	H314	Causes severe skin burns and eye damage.
	H330	Fatal if inhaled.
	H335	May cause respiratory irritation.
	H373	May cause damage to organs through prolonged or repeated exposure.
	None	May displace oxygen and cause rapid suffocation.
Precautionary statements :	**Prevention:**	
	P264	Wash skin thoroughly after handling.
	P271	Use only outdoors or in a well-ventilated area.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
	P284	Wear respiratory protection.
	Response:	
	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P310	Immediately call a POISON CENTER/

	doctor.
P320	Specific treatment is urgent (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
Storage:	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410	Protect from sunlight.
Disposal:	
P501	Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : BF3,Trifluoroborane (NIOSH), Boron Fluoride

Formula : BF_3

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
Boron trifluoride	7637-07-2	100.00 %

SECTION 4. FIRST AID MEASURES

Inhalation : Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for

at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before re-use. Discard contaminated shoes. Call a physician immediately.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Call a physician immediately.

Ingestion : Unlikely route of exposure. Do not give anything by mouth. Call a physician immediately.

Notes to physician

Indication of immediate medical attention and special treatment needed, if necessary : Treat as a corrosive acid. Boron Trifluoride breaks down into Boric and Fluoroboric acid (strong corrosive acids). May form fluoride ions under extreme conditions. Consider treatment for fluoride toxicity, hypocalcemia, and hypomagnesemia if exposure is severe.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Fog type spray to knock down fumes and particulates.

Specific hazards during firefighting : Contents under pressure.
This product is not flammable at ambient temperatures and atmospheric pressure.

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

Further information : Use water spray to cool fire exposed tanks and containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Wear personal protective equipment.
Ventilate the area.
Unprotected personnel should not return until air has been

tested and determined safe.
Do not swallow.
Do not breathe vapours, mist or gas.
Do not get in eyes, on skin, or on clothing.

Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Retain and dispose of contaminated wash water. Do not allow run-off from fire fighting to enter drains or water courses.
Methods and materials for containment and cleaning up	:	In case of leakage from BF3 cylinders, copious water sprays may be used or the cylinder may be inverted into a drum of water. Water sprays should be directed to as close to the source as possible but not directly on the leak as this may cause more corrosion. The volume of water will act as a heat sink and control the exothermic reaction while providing a large excess of water for absorbing the BF3. It is also advisable to place a water hose in the drum to maintain a constant flow of water to assist absorption, keep the container cool, and reduce acidity and corrosion by dilution. The contaminated acidic water must be contained for ultimate treatment and disposal in accordance with applicable environmental regulations. Releases of BF3 to the atmosphere create a dense, white cloud. Because of the very rapid reaction rate between BF3 and water, water sprays are very effective in mitigating the cloud. Water sprays should be directed as close to the source of the leak as possible. Because of the acidic nature of BF3 hydrates and their hydrolysis products, direct contact with the leak source should be avoided as corrosion and enlargement of the leak site may result. However, if large quantities of water are available, such as from a fire hose with a coarse fog nozzle, the coarse spray can be directed at the source to serve as both a diluent and coolant. As a reminder, all the possible species present – BF3 hydrate(s), ionized BF3 hydrate(s), hydroxyfluoborate, and fluoroboric acid – are strong acids and must be directed to a containment or treatment facility to be ultimately disposed of in accordance with applicable environmental regulations. They also contained combined fluoride which could eventually affect human tissue if contacted in any significant quantity.

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Wear personal protective equipment. Use only with adequate ventilation. Follow all standard safety precautions for handling and use of compressed gas cylinders. Do not drop or bang cylinders together. Do not apply heat or chill cylinders below -20°F (-29°C). Do not add other gases to BF3 cylinder. Wash thoroughly after handling. Do not swallow. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

Storage

Conditions for safe storage, including any incompatibilities	:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Protect from atmospheric moisture and water. Protect cylinders from physical damage. Store away from incompatible substances.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures	:	Ensure that eyewash stations and safety showers are close to the workstation location.
Engineering measures	:	Use with local exhaust ventilation.
Eye protection	:	Wear as appropriate: Goggles or face shield, giving complete protection to eyes
Hand protection	:	PVC disposable gloves Neoprene gloves Gloves must be inspected prior to use.

Replace when worn.

Skin and body protection : Full protective suit

Respiratory protection : For visible releases of BF3, wear a NIOSH approved full-face supplied air or self-contained breathing apparatus (SCBA).

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Boron trifluoride	7637-07-2	TWA : Time weighted average	2.5 mg/m3	02 2006	OSHA/Z2:US. OSHA Table Z-2 (29 CFR 1910.1000), as amended
Further information : Form of exposure : Dust.					
Boron trifluoride	7637-07-2	Ceiling : Ceiling Limit Value:	3 mg/m3 (1 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Boron trifluoride	7637-07-2	Ceiling : Ceiling Limit Value:	3 mg/m3 (1 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Boron trifluoride	7637-07-2	Ceil_Time : Ceiling Limit Value and Time Period (if specified) :	3 mg/m3 (1 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Boron trifluoride	7637-07-2	Ceiling : Ceiling Limit Value:	(0.7 ppm)	03 2016	ACGIH:US. ACGIH Threshold Limit Values, as amended

Boron trifluoride	7637-07-2	TWA : Time weighted average	(0.1 ppm)	03 2016	ACGIH:US. ACGIH Threshold Limit Values, as amended

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	Compressed gas
Color	:	Clear in an inert atmosphere. Forms a dense white cloud when exposed to moisture.
Odor	:	Pungent odor with a stinging effect on eyes and skin.
pH	:	Note: not determined
Melting point/ range	:	-128.4 °C
Boiling point/boiling range	:	-100 °C at 1,013 hPa
Flash point	:	Note: Not applicable
Lower flammability limit	:	NoteNot applicable
Upper flammability limit	:	Note: Not applicable
Vapor pressure	:	Note: No data available
Vapor density	:	2.34 Note: (Air = 1.0)
Water solubility	:	77 g/l

Note: hydrolyses

Partition coefficient: n-octanol/water	:	Note: No data available
Ignition temperature	:	Note: Not applicable
Molecular weight	:	67.81 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Protect from extreme heat and cold. Keep away from direct sunlight.
Incompatible materials	:	Polymerizable materials, water, alkali metals, alkaline earth metals except magnesium, alkyl nitrates.
Hazardous decomposition products	:	Vapor reacts rapidly with water in the air to form BF3 hydrates. Reaction with excess water forms fluoroboric acid (a strong acid), boric acid and hydroxy fluoroboric acids.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute inhalation toxicity	:	LC50: 1.21 mg/l , gas Exposure time: 4 h Species: Rat, male and female Method: OECD Test Guideline 403

Skin irritation	:	Result: Causes severe burns. Classification: Corrosive
Eye irritation	:	Result: Risk of serious damage to eyes. Classification: Corrosive
Repeated dose toxicity	:	Species: Rat, male and female Application Route: inhalation (gas) Exposure time: 13 Weeks NOAEL (No observed adverse effect level): 6 mg/m3 LOAEL (Lowest observed adverse effect level): 17 mg/m3 Target Organs: Kidney
Genotoxicity in vitro	:	Test Method: Ames test Result: Not active up to 100% v/v with or without S9.

SECTION 12. ECOLOGICAL INFORMATION

Further information on ecology

Additional ecological information	:	We have no quantitative data concerning the ecological effects of this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	:	Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT	UN/ID No.	:	UN 1008
	Proper shipping name	:	BORON TRIFLUORIDE
	Poison Inhalation Hazard		Hazard zone B

	Class		2.3
	Packing group		
	Hazard Labels		2.3 (8)
IATA	UN/ID No.	:	UN 1008
	Class	:	2.3 Not permitted for transport
IMDG	UN/ID No.	:	UN 1008
	Description of the goods	:	BORON TRIFLUORIDE
	Class	:	2.3
	Hazard Labels	:	2.3 (8)
	EmS Number	:	F-C, S-U
	Marine pollutant	:	no

IMDG Code segregation group according chapter 3.1.4.4 : NONE,

SECTION 15. REGULATORY INFORMATION

Inventories

USA. List of Active Substances on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory, as amended	:	All substances listed as active on the TSCA inventory
Australian Inventory of Industrial Chemicals	:	All components are listed on the inventory, regulatory obligations/restrictions apply
Canada. Domestic Substances List (DSL), as amended	:	All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	:	On the inventory, or in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	:	On the inventory, or in compliance with the inventory
Philippines. Inventory of Chemicals and Chemical Substances (PICCS)	:	On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)	:	On the inventory, or in compliance with the inventory
Taiwan Chemical Substance Inventory (TCSI)	:	On the inventory, or in compliance with the inventory
TSCA 5A	:	US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Proposed Significant New Use Rules (SNURs) (40 CFR 721 and 725) No substances are subject to a Significant New Use Rule.
TSCA 12B	:	US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D) No substances are subject to TSCA 12(b) export notification requirements.

National regulatory information

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) SARA III	:	The following component(s) of this product is/are subject to the emergency planning provisions of 40 CFR 355 when there are amounts equal to or greater than the Threshold Planning Quantity (TPQ): Reportable quantity:: 500 lbs Boron trifluoride 7637-07-2
SARA 302 Components	:	The following components are subject to reporting levels established by SARA Title III, Section 302: Boron trifluoride 7637-07-2
SARA 313 Components	:	The following components are subject to reporting levels established by SARA Title III, Section 313: Boron trifluoride 7637-07-2
SARA 311/312 Hazards	:	Sudden Release of Pressure Hazard Acute Health Hazard Chronic Health Hazard

California Prop. 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
Massachusetts RTK	:	Boron trifluoride	7637-07-2
New Jersey RTK	:	Boron trifluoride	7637-07-2
Pennsylvania RTK	:	Boron trifluoride	7637-07-2

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	3	4
Flammability	:	0	0
Physical Hazard	:	1	
Instability	:		1

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.
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Person who prepared the SDS Solstice Product Stewardship Group