Boron tribromide, 1M solution in methylene chloride

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Date of issue: 7/19/2019 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixture
Product name	: Boron tribromide, 1M solution in methylene chloride
CAS-No.	: 10294-33-4
Product code	: 90026940
Formula	: BBr3
Product group	: Blend

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category	: Laboratory use,Industrial use,Professional use
Industrial/Professional use spec	: For professional use only
Use of the substance/mixture	: For analytical purposes Scientific research and development Not for human consumption or veterinary purposes.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Scafell Organics
Molekula Ltd
Lingfield Way
Darlington - England
T +44 (0) 1949 823777 / +44 (0) 7590 545705
info@molekula.com / kbowen@molekula.com - www.molekula.com

1.4. Emergency telephone number

Emergency number : +44 (0) 7590 545705

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 2	H300
Acute toxicity (inhalation:dust,mist) Category 2	H330
Skin corrosion/irritation, Category 1A	H314
Carcinogenicity, Category 2	H351
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS08 GHS05 GHS06

Signal word (CLP)	: Danger
Hazardous ingredients	: Boron Tribromide; DICHLOROMETHANE
Hazard statements (CLP)	: H300+H330 - Fatal if swallowed or if inhaled. H314 - Causes severe skin burns and eye damage. H336 - May cause drowsiness or dizziness. H351 - Suspected of causing cancer.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P232 - Protect from moisture.
P260 - Do not breathe mist, spray, vapours.
P280 - Wear protective clothing, eye protection, face protection, protective gloves.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

EUH-statements : EUH014 - Reacts violently with water.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
DICHLOROMETHANE	(CAS-No.) 75-09-2 (EC-No.) 200-838-9 (EC Index-No.) 602-004-00-3	80 - 85	Carc. 2, H351
Boron Tribromide	(CAS-No.) 10294-33-4 (EC-No.) 233-657-9 (EC Index-No.) 005-003-00-0	15 - 20	Acute Tox. 2 (Inhalation), H330 Acute Tox. 2 (Oral), H300 Skin Corr. 1A, H314

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If possible show this sheet, if not available show packaging or label. Never give anything by mouth to an unconscious person. Do not leave affected person unattended.

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. If breathing difficulties persist : Get medical advice/attention.

First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Do not remove clothing if it sticks to the skin. If irritation persists, consult a doctor.

First-aid measures after eye contact : Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth out with water. Do not induce vomiting. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : Fatal if inhaled. Fatal if swallowed.

Symptoms/effects after inhalation : May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing. Headache. May cause drowsiness or dizziness.

Symptoms/effects after skin contact : May produce skin irritation, blistering, ulcers, and deep scarring. Redness, pain. More severe symptoms are also possible.

Symptoms/effects after eye contact : Causes serious eye damage. Blurred vision. redness, itching, tears. stinging. More severe symptoms are also possible.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard. Symptoms of ingestion include drowsiness, weakness, headache, dizziness, nausea, vomiting. Severe irritation or burns to the mouth, throat, oesophagus, and stomach.

Chronic symptoms : Suspected of causing cancer.

4.3. Indication of any immediate medical attention and special treatment needed

Immediately call a POISON CENTER/doctor.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Sand.

Unsuitable extinguishing media : Do NOT use water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Reacts violently with water.

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO2). hydrogen bromide. hydrogen chloride. Borane/boron oxides.

5.3. Advice for firefighters

Precautionary measures fire	: Keep container tightly closed and away from heat, sparks and flame. Keep away from combustible materials.
Firefighting instructions	: Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Warn all persons of toxic hazard.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Isolate from fire, if possible, without unnecessary risk. Do not breathe gas, fumes, vapour or spray. No flames, no sparks. Eliminate all sources of ignition.

6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Evacuate unnecessary personnel. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Do not touch or walk on the spilled product. Avoid contact with skin, eyes and clothing.
Measures in case of dust release	: Shelter from vapours by keeping upwind. Ventilate the area thoroughly, especially low lying areas (basements, workpits etc).

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection. Use self-contained breathing apparatus and chemically protective clothing.
Emergency procedures	: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Collect spillage. Contain the spilled material by bunding.
Methods for cleaning up	: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Try to stop release if without risk.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Reacts violently with water.
Precautions for safe handling	: Avoid formation of vapours. Provide local exhaust or general room ventilation. Handle under inert gas.
Hygiene measures	: Take off immediately all contaminated clothing and wash it before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Ensure adequate ventilation, especially in confined areas.
Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : Heat sources, Direct sunlight. Keep container closed when not in use. Moisture sensitive. Never allow product to get in contact with water during storage. Store contents under inert gas.
Incompatible products	: alcohols. Alkali metals. Aluminium. Metals. Potassium. Sodium. Strong bases. Water.
Incompatible materials	: Sources of ignition. Direct sunlight. Heat sources. Moisture. Water, humidity.
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Storage area	: Store below 20 °C. Store in dry protected location to prevent any moisture contact.
Special rules on packaging	: Never allow product to get in contact with water during storage.

7.3. Specific end use(s)

For analytical purposes. Scientific research and development. Not for human consumption or veterinary purposes.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Boron tribromide, 1M solution in methylene chloride (10294-33-4)		
United Kingdom	Local name	Boron tribromide
United Kingdom	WEL STEL (mg/m³)	10 mg/m³
United Kingdom	WEL STEL (ppm)	1 ppm
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

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United Kingdom	Regulatory reference	EH40. HSE

DICHLOROMETHANE (75-09-2)		
EU	IOELV TWA (mg/m³)	≈ 350 mg/m³ UK
EU	IOELV STEL (mg/m³)	≈ 1060 mg/m³ UK
United Kingdom	Local name	Dichloromethane
United Kingdom	WEL TWA (mg/m³)	353 mg/m³
United Kingdom	WEL STEL (mg/m³)	706 mg/m³
United Kingdom	Remark (WEL)	BMGV (Biological monitoring guidance values are listed in Table 2), Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40. HSE

8.2. Exposure controls

Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety procedures. Floors should be impervious, resistant to liquids and easy to clean.

Personal protective equipment:

Avoid all unnecessary exposure.

Materials for protective clothing:

Wear suitable protective clothing, gloves and eye/face protection

Hand protection:

The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.11		EN 374

Eye protection:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Use eye protection according to EN 166, designed to protect against liquid splashes.

Type	Use	Characteristics	Standard
Safety goggles, Face shield	Droplet, vapours	tightly fitting safety goggles, With side shields	EN 166

Skin and body protection:

Emergency safety showers should be available in the immediate vicinity of any potential exposure. Keep suitable chemically resistant protective clothing readily available for emergency use

Type	Standard
Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product	EN 14605

Respiratory protection:

Keep self contained breathing apparatus readily available for emergency use. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Device	Filter type	Condition	Standard
Air-Purifying Respirator (APR), reusable	ABEK	Moist condition, Mist formation, Protection for Liquid particles, Vapour protection	EN 14387

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Molecular mass	: 250.52 g/mol
Colour	: dark yellow. dark brown. Black.
Odour	: No data available.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.476
Solubility	: No data available
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with water.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Protect from sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Moisture. Water, humidity.

10.5. Incompatible materials

Alcohols. Alkali metals. Aluminium. Metals. Potassium. Sodium. Strong bases. water.

10.6. Hazardous decomposition products

No hazardous decomposition products known at room temperature. Thermal decomposition generates : Carbon oxides (CO, CO2). hydrogen bromide. hydrogen chloride. Borane/boron oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Oral: Fatal if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Inhalation:dust,mist: Fatal if inhaled.

ATE CLP (oral)	25 mg/kg bodyweight
ATE CLP (dust,mist)	0.25 mg/l/4h

Boron Tribromide (10294-33-4)	
LC50 inhalation rat (ppm)	2585 1hr

DICHLOROMETHANE (75-09-2)	
LD50 oral rat	> 2000 mg/kg

LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	60.14 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Additional information : Based on available data, the classification criteria are not met
Serious eye damage/irritation : Serious eye damage, category 1, implicit
Additional information : Based on available data, the classification criteria are not met
Respiratory or skin sensitisation : Not classified
Additional information : Based on available data, the classification criteria are not met
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Suspected of causing cancer.
Additional information : Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified
Additional information : Based on available data, the classification criteria are not met
STOT-single exposure : May cause drowsiness or dizziness.
Additional information : Based on available data, the classification criteria are not met
STOT-repeated exposure : Not classified
Additional information : Based on available data, the classification criteria are not met
Aspiration hazard : Not classified
Additional information : Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

DICHLOROMETHANE (75-09-2)	
LC50 fish 1	193 mg/l 96h
LC50 fish 2	97 mg/l 48h
EC50 other aquatic organisms 1	2.59 g/l 40min
NOEC chronic fish	83-321 - 28days

12.2. Persistence and degradability

Boron tribromide, 1M solution in methylene chloride (10294-33-4)	
Persistence and degradability	No data available.

Boron Tribromide (10294-33-4)	
Persistence and degradability	No data available.

DICHLOROMETHANE (75-09-2)	
Persistence and degradability	No data available.

12.3. Bioaccumulative potential

Boron tribromide, 1M solution in methylene chloride (10294-33-4)	
Bioaccumulative potential	No data available.

Boron Tribromide (10294-33-4)	
Bioaccumulative potential	No data available.

DICHLOROMETHANE (75-09-2)	
Log Pow	1.25

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Boron tribromide, 1M solution in methylene chloride (10294-33-4)
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Component	
DICHLOROMETHANE (75-09-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

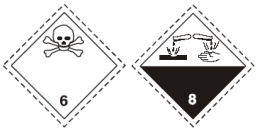
13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3390	3390	3390	3390	3390
14.2. UN proper shipping name				
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	Toxic by inhalation liquid, corrosive, n.o.s.	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S.
Transport document description				
UN 3390 TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. (Boron tribromide, 1M solution in methylene chloride), 6.1 (8), I, (C/D)	UN 3390 TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. (Boron tribromide, 1M solution in methylene chloride), 6.1 (8), I	UN 3390 Toxic by inhalation liquid, corrosive, n.o.s. (Boron tribromide, 1M solution in methylene chloride), 6.1	UN 3390 TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. (Boron tribromide, 1M solution in methylene chloride), 6.1 (8), I	UN 3390 TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. (Boron tribromide, 1M solution in methylene chloride), 6.1 (8), I
14.3. Transport hazard class(es)				
6.1 (8)	6.1 (8)	6.1 (8)	6.1 (8)	6.1 (8)
		Not applicable		
14.4. Packing group				
I	I	Not applicable	I	I
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : TC1

Special provisions (ADR) : 274

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P602

Mixed packing provisions (ADR) : MP8, MP17

Portable tank and bulk container instructions (ADR) : T20

Portable tank and bulk container special provisions (ADR)	: TP2
Tank code (ADR)	: L10CH
Tank special provisions (ADR)	: TU14, TU15, TE19, TE21
Vehicle for tank carriage	: AT
Transport category (ADR)	: 1
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV1, CV13, CV28
Special provisions for carriage - Operation (ADR)	: S9, S14
Hazard identification number (Kemler No.)	: 668
Orange plates	: 
Tunnel restriction code (ADR)	: C/D
EAC code	: 2XE
APP code	: B

Transport by sea

Special provisions (IMDG)	: 274
Packing instructions (IMDG)	: P602
Tank instructions (IMDG)	: T20
Tank special provisions (IMDG)	: TP2, TP13
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: A variety of toxic liquids which present a highly toxic inhalation hazard as well as being corrosive. Highly toxic if swallowed, by skin contact or by inhalation.

Air transport

PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: Forbidden
CAO max net quantity (IATA)	: Forbidden
ERG code (IATA)	: 6C

Inland waterway transport

Classification code (ADN)	: TC1
Special provisions (ADN)	: 274, 802
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EP, TOX, A
Ventilation (ADN)	: VE02
Number of blue cones/lights (ADN)	: 2

Rail transport

Classification code (RID)	: TC1
Special provisions (RID)	: 274
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P602
Mixed packing provisions (RID)	: MP8, MP17
Portable tank and bulk container instructions (RID)	: T20
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L10CH
Special provisions for RID tanks (RID)	: TU14, TU15, TU38, TE21, TE22
Transport category (RID)	: 1
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28, CW31

Hazard identification number (RID) : 668

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

Germany

Reference to AwSV	: Water hazard class (WGK) 3, Highly hazardous to water (Classification according to AwSV, Annex 1)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen	: None of the components are listed
SZW-lijst van mutagene stoffen	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	: None of the components are listed

Denmark

Danish National Regulations	: Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Data sources	: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	: None.

Full text of H- and EUH-statements:	
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Carc. 2	Carcinogenicity, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
H300	Fatal if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
EUH014	Reacts violently with water.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.