

Printing date 07/19/2021

Reviewed on 07/14/2021

1 Identification

- **Product name**
- **Trade name:** Borane, dimethylamine complex, min. 97%
- **Item number:** 93-0554
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Sol. 1 H228 Flammable solid.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS06



GHS07

- **Signal word** Danger

- **Hazard-determining components of labeling:**

dimethylamine--borane (1:1)

methylamine (di-)

- **Hazard statements**

H228 Flammable solid.

(Contd. on page 2)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 1)

H301+H311 Toxic if swallowed or in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P231+P232 Handle under inert gas. Protect from moisture.

P235 Keep cool.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ 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.

P422 Store contents under inert gas.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 2

Fire = 2

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 2

Fire = 0

Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

74-94-2	dimethylamine--borane (1:1)	97.0%
124-40-3	methylamine (di-)	3.0%

4 First-aid measures

Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation: In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing: Do not induce vomiting; immediately call for medical help.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

(Contd. on page 3)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

124-40-3	methylamine (di-)	10 ppm
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· **PAC-2:**

124-40-3	methylamine (di-)	66 ppm
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· **PAC-3:**

124-40-3	methylamine (di-)	250 ppm
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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** Keep cool.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Recommended storage temperature:** Store at temperatures not exceeding -18 °C. Keep cool.

(Contd. on page 4)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 3)

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

124-40-3 methylamine (di-)

PEL	Long-term value: 18 mg/m ³ , 10 ppm
REL	Long-term value: 18 mg/m ³ , 10 ppm
TLV	Short-term value: 27.6 mg/m ³ , 15 ppm Long-term value: 9.2 mg/m ³ , 5 ppm DSEN
WEEL	Short-term value: 3 ppm Long-term value: 1 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

· **Breathing equipment:** A NIOSH approved respirator in accordance with 29 CFR 1910.134.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 4)

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Crystalline
· Color:	White
· Odor:	Fish-like
· Odor threshold:	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

· Melting point/Melting range:	36 °C (97 °F)
· Boiling point/Boiling range:	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Flammable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapor pressure:** Not applicable.

· **Density at 20 °C (68 °F):** 0.69 g/cm³ (5.75805 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

· **Water:** Insoluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· Dynamic:	Not applicable.
· Kinematic:	Not applicable.

· **Solvent content:**

· Organic solvents:	0.0 %
· VOC content:	0.0 g/l / 0.00 lb/gl

· **Solids content:** 100.0 %

(Contd. on page 6)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 5)

· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

74-94-2 dimethylamine--borane (1:1)

Oral	LD50	59 mg/kg (rat)
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124-40-3 methylamine (di-)

Oral	LD50	698 mg/kg (rat)
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Inhalative	LC50/4 h	4540 mg/l (rat)
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· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

(Contd. on page 7)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%




(Contd. of page 6)

- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN2926
- **UN proper shipping name**
- **DOT** Flammable solids, toxic, organic, n.o.s.
- **IMDG, IATA** FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 4.1 Flammable solids, self-reactive substances and solid desensitised explosives
- **Label** 4.1, 6.1
- **IMDG**
- 
- **Class** 4
- **Label** 4.1/6.1
- **IATA**
- 
- **Class** 4.1 Flammable solids, self-reactive substances and solid desensitised explosives
- **Label** 4.1 (6.1)

(Contd. on page 8)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 7)

· Packing group · DOT, IMDG, IATA	<i>II</i>
· Environmental hazards: · Marine pollutant:	<i>No</i>
· Special precautions for user · EMS Number: · Stowage Category · Stowage Code	<i>Not applicable.</i> <i>F-A,S-G</i> <i>B</i> <i>SW2 Clear of living quarters.</i>
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	<i>Not applicable.</i>
· Transport/Additional information: · DOT · Quantity limitations	<i>On passenger aircraft/rail: 15 kg</i> <i>On cargo aircraft only: 50 kg</i>
· UN "Model Regulation":	<i>UN 2926 FLAMMABLE SOLIDS, TOXIC, ORGANIC, N.O.S., 4.1 (6.1), II</i>

15 Regulatory information

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

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

124-40-3 methylamine (di-)

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

74-94-2 dimethylamine--borane (1:1) I (oral)

· **TLV (Threshold Limit Value established by ACGIH)**

124-40-3 methylamine (di-) A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

(Contd. on page 9)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

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Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 8)

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS06 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**

dimethylamine--borane (1:1)

methylamine (di-)

· **Hazard statements**

H228 Flammable solid.

H301+H311 Toxic if swallowed or in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

· **Precautionary statements**

P231+P232 Handle under inert gas. Protect from moisture.

P235 Keep cool.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ 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.

P422 Store contents under inert gas.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Technical Department.

· **Contact:** Technical Director

· **Date of preparation / last revision** 07/19/2021 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

(Contd. on page 10)

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/14/2021

Trade name: Borane, dimethylamine complex, min. 97%

(Contd. of page 9)

REL: Recommended Exposure Limit
Flam. Sol. 1: Flammable solids – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US