


MATERIAL SAFETY DATA SHEET (MSDS)
according to Regulation (EC) No. 1907/2006
Version 2.0 Revision Date 01.06.2015

1.0 Identification of the substance/preparation and of the company/enterprise

- 1.1 Product identifiers** : Pinacolborane stab. 1.0% triethylamine
EINECS : none
CAS : 25015-63-8
RTECS : none
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
 Used for hydroboration of alkenes and alkynes.
- 1.3 Details of the supplier of the safety data sheet**
 JSC AVIABOR, Nizhny Novgorod Region
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- 1.4 Emergency telephone number:** (+7)-8313-249 750/ 630

2.0 Hazards Identification

- 2.1 Classification of the substance or mixture**
 Pinacolborane is a transparent colorless liquid, readily reacts with moist air or water, highly flammable. Pinacolborane may be harmful by inhalation, ingestion, skin absorption. Causes eye and skin burns. Pinacolborane is extremely destructive to mucous membranes, respiratory tract, eyes and skin. No manipulations with the product are allowed till safety measures recommended by the producer are studied and mastered.
Regulation (EC) No 1272/2008 Annex VI Table

Classification		Labelling		
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Pictogram Signal Word Code(s)	Hazard Statement Code(s)	Suppl. Hazard statement code(s)
Flammable liquid 2 Water-react 2	H225 H261	 Wng	H225 H261	

- 2.2 Label elements**
Hazard statement(s)
 H225 Highly flammable liquid and vapor.
 H261 In contact with water releases flammable gas.
Precautionary statement(s)
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P231+P232 Handle under inert gas. Protect from moisture.
 P422 Store contents under inert gas.
- 2.3 Other hazards** – none

3.0 Composition / information on ingredients

Pinacolborane : not less than 98%
 Trade names/Synonyms : 4,4,5,5-tetramethyl-1,3,2-dioxaborolane
CAS : 25015-63-8
EINECS : none
Formula : C₆H₁₃BO₂
Molecular mass : 127.98 g/mol
Classification : Flam. Liq. 2, Water-react 2: H225, H261

Additives:

Triethylamine	: 1% (w/w)
Trade names/Synonyms	: N,N-Diethylethanamine
CAS	: 121-44-8
EINECS	: 204-469-4
Formula	: C ₆ H ₁₅ N
Molecular mass	: 101.19 g/mol
Classification	: Flam. Liq. 2; Acute Tox. Oral. 4; Acute Tox. Inh. 3; Acute Tox. Derm. 3; Skin Corr. 1A; STOT SE 3; H225, H302, H311, H331, H314, H335

4.0 First Aid Measures**4.1 Description of first aid measures****After skin contact**

Immediately wash the contaminated skin with plenty of water.

After eyes contact

Immediately wash with plenty of water with eye-lids wide open and call an eye-specialist.

Respiratory system

Take the victim to the fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is stopped give oxygen. Urgently send to hospital.

After ingestion/inhalation

Make a victim drink plenty of water, induce vomiting. Consult a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed

no data available

5.0 Fire Fighting Measures**5.1 Extinguishing media****Suitable extinguishing media**

Powder fire extinguisher, inert gas.

Unsuitable extinguishing media

Water, foam, carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Combustion products: Carbon monoxide, carbon dioxide, boron oxide.

5.3 Precautions for fire-fighters

Wear full protective clothing, including protective gloves and boots. For respiratory protection use a self-contained breathing apparatus operating in a positive pressure mode.

5.4 Further information

no data available

6.0 Accidental Release Measures**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapor can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Dry the place of release with sand and place into air-proof container, make a decomposition with mixture of isopropyl alcohol and water (1:1) and send for fire treatment.

6.4 Reference to other sections

For disposal see section 13.

7.0 Handling and Storage

7.1 Precautions for safe handling

Eating, drinking, smoking as well as keeping of food in a workroom is forbidden.
Keep away from heavy metal compounds, oxidants and acids.

7.2 Conditions for safe storage, including any incompatibilities

Store in a tight container in an inert gas atmosphere, without contact with air and moisture at the temperature no higher than 0-5 °C; transportation and storage at 20-25 °C is acceptable for 3 months.

7.3 Specific end uses

no data available

8.0 Exposure Control and Personnel Protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

see clause 7.

Personal protective equipment

Normal use & handling

Respiratory system - NIOHA/MSHA-approved respirator

Hands protection - rubber gloves

Eyes protection - closely fitted goggles

Skin protection - protective clothes

Accidental work

Full protective clothing, including gloves and boots, respiratory protection.

Exposure limits

not available.

Technical equipment

A leak-proof system, packless valves, welded pipelines and other leak-proof constructions.

Industrial hygiene

When handling the product provide an effective exhaust ventilation in a working place. Keep working clothes in a separate place. Wash hands before breaks and after working with the product. Change the contaminated clothes, take it to laundry regularly. Shower after work is obligatory.

9.0 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Form of the compound	: transparent liquid
Color	: colorless
Odor	: specific
pH	: not available
Boiling point	: 42-43 °C / 50 mm Hg
Flash point	: 5 °C
Oxidizing properties	: not available
Explosive properties	: not available
Lower limit of the melting range	: not available
Vapor pressure	: not available
Partition coefficient	: not available
Viscosity	: not available
Vapor density	: not available
d ₄ ²⁰ density	: 0.882 g/ml
Decomposition temp.	: not available
Surface tension	: not available
Conductivity	: not available
Enthalpy of Vaporization	: not available
Solubility in water	: decomposed
Solubility	: not available

9.2 Other safety information

Ignition temperature : not available

Lower limit of the melting range : not available

n_D^{20} refractory index : 1.3960

The a.m. information can not be used for making specifications. Before making a specification contact JSC Aviabor.

10.0 Stability and Reactivity**10.1 Reactivity**

no data available

10.2 Chemical stability

The product is stable when stored in a sealed container in an inert gas atmosphere at the temperature 0-5 °C.

10.3 Possibility of hazardous reactions

see clause 7.

10.4 Conditions to avoid

Exposure to moisture.

10.5 Incompatible materials

Moist, strong acids, oxidants.

10.6 Hazardous decomposition products

Boric acid, carbon monoxide, carbon dioxide.

11.0 Toxicological Information**11.1 Information on toxicological effects****Acute toxicity**

No data available

Irritation and corrosion

No data available

Skin corrosion/ irritation

No data available

Serious eye damage/ eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product presents at levels greater than or equal to 0.1 % is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity – single exposure

No data available

Specific target organ toxicity – repeated exposure

No data available

Aspiration hazard

No data available

Route of exposure

Contact with skin : irritating, causes burns.

Contact with eyes : irritating, causes burns.

By inhalation : harmful.

By ingestion : harmful.

Additional information

RTECS : none

12.0 Ecological Information

- 12.1 Toxicity**
no data available
- 12.2 Persistence and degradability**
no data available
- 12.3 Bioaccumulative potential**
no data available
- 12.4 Mobility in soil**
no data available
- 12.5 Results of PBT and vPvB assessment**
no data available
- 12.6 Other adverse effects**
no data available

13.0 Disposal Consideration

- 13.1 Waste treatment methods**
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

14.0 Transport Information

- 14.1 UN-Number**
3148
- 14.2 UN proper shipping name**
Water-reactive liquid, n.o.s. (Pinacolborane)
- 14.3 Transport hazard class(es)**
GGVS/GGVE/ADR/RID: 4.3, Hazard Identification: X323, Classification: W1, Tunnel Code: (B/E)
IMO/GGVSee: 4.3, MFAG: 4.2, EmS: F-G, S-N, Stowage: E
ICAO/IATA: 4.3, PAX: F, CAO: 480
- 14.4 Packaging group**
GGVS/GGVE/ADR/RID: I IMO/GGVSee: I ICAO/IATA: I
- 14.5 Environmental hazards**
GGVS/GGVE/ADR/RID: No IMO/GGVSee: No ICAO/IATA: No
- 14.6 Special precautions for user**
See section 7.0
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
The substance is not intended to be transported in bulk.

15.0 Regulatory Information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
no data available
- 15.2 Chemical Safety Assessment**
no data available

16.0 Other Information

THIS INFORMATION IS TO THE BEST OF OUR KNOWLEDGE AND IS INTENDED TO DESCRIBE THE PRODUCT ONLY IN TERMS OF HEALTH AND SAFETY AND ENVIRONMENTAL REQUIREMENTS. SINCE THE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, ANY RECOMMENDATIONS OR SUGGESTIONS ARE MADE WITHOUT GUARANTEE AND WE DO NOT BEAR ANY LIABILITY FOR LOSS OR DAMAGE

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