

JSC AVIABOR

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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 name : 9-Borabicyclo[3.3.1]nonane dimer

EINECS : none

CAS : 21205-91-4

RTECS : none

1.2 Application

Hydroboration reagent and polymer derivatizing agent.

1.3 Company:

JSC AVIABOR, Nizhny Novgorod Region

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Only Representative - Espace Chemicals GmbH

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1.4 Emergency phone: (+7)-8313-249 750/ 630

2.0 Hazards Identification

2.1 Classification of the substance or mixture

Reacts with water, moist air, alcohols, acids, and other incompatible materials releasing flammable hydrogen gas. May cause eye and respiratory tract irritation.

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)
Flamm. Solid. 1	H228	  Danger	H228	EUH014
Water-react. 2	H261		H261	
Eye Irrit. 2	H319		H319	
STOT SE 3	H335		H335	
Skin Irrit. 2	H315		H315	

2.2 Label elements

Hazard Statement(s):

H228 Flammable solid.

H261 In contact with water releases flammable gas.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H315 Causes skin irritation.

EUH014 Reacts violently with water.

Precautionary Statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards – none

3.0 Composition/Information on Ingredients

9-Borabicyclo [3.3.1] nonane	98 wt%
Trade names/Synonyms	9-BBN, 9-BBN dimer
Chemical formula	C ₁₆ H ₃₀ B ₂
Molar mass	244.04 g/mol
EINECS	none
CAS	21205-91-4
Classification:	Flamm. Solid. 1; Water-react. 2; Eye Irrit. 2; STOT SE 3; Skin Irrit. 2; H228, H261, H319, H335, H315, EUH014

4.0 First-aid procedures

4.1 Description of first aid measures

After skin contact

Immediately wash with plenty of water. Remove all contaminated clothing separately before reusing them.

After eyes contact

Wash immediately with plenty of water for at least 15 minutes. Immediately consult a doctor.

After ingestion

For any accidental contamination of the mouth, gargle with water and rinse mouth thoroughly for at least 20 minutes. Immediately consult a doctor.

After inhalation

Move the subject into the fresh air. If breathing has ceased or is laboured commence artificial respiration. If breathing is difficult, give oxygen. Immediately call a doctor.

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 procedures

5.1 Extinguishing media

Suitable extinguishing media

Dry chemical powder.

Unsuitable extinguishing media

Water.

5.2 Special hazards arising from the substance or mixture

Flammable solid. Emits toxic fumes under fire conditions.

5.3 Precautions for fire-fighters

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

5.4 Further information

no data available

6.0 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.

6.2 Environmental precautions

Don't allow to enter sewerage system.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7.0 Handling and Storage**7.1 Precautions for safe handling**

Do not smoke while handling. Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place keeping the containers closed when not used. Keep far away from sources of heat, flame, sparks and any possible contact with water, moist air, alcohols, acids, amines and other incompatible materials. Do not expose to air. Handle and store in a closed system under dry nitrogen gas.

7.3 Specific end uses

no data available

8.0 Control of exposure / Personal protection**8.1 Control parameters**

Components with workplace control parameters

8.2 Exposure controls**Engineering controls**

Safety shower and eye bath. Use adequate ventilation. Use non-sparking tools.

General hygiene measures

Wash contaminated clothing before reuse. Wash thoroughly after handling.

Personal protective equipment

Respiratory	: Breathing mask.
Hand protection	: Rubber gloves.
Eye protection	: Closely fitting goggles.
Skin protection	: Protective clothing.

9.0 Physical and Chemical Properties**9.1 Information on basic physical and chemical properties**

Form	: Powder		
Colour	: White		
Odour	: Specific		
pH	: N/A		
BP/BP Range	: N/A		
Flash Point	: N/A		
Flammability (solid gas)	: the substance or mixture is a flammable solid with the subcategory 1.		
Autoignition Temp.	: N/A		
Oxidizing Properties	: N/A	Explosive Properties	: N/A
Explosion Limits Lower	: N/A	Vapor Pressure	: N/A
SG/Density	: N/A	Partition Coefficient	: N/A
Viscosity	: N/A	Vapor Density	: N/A
Saturated Vapor Conc.	: N/A	Evaporation Rate	: N/A
Bulk Density	: 0.37-0.42 g/cm ³	Decomposition Temp.	: N/A
Solvent Content	: N/A	Water Content	: N/A
Surface Tension	: N/A	Conductivity	: N/A
Miscellaneous Data	: N/A		
Solubility in tetrahydrofuran	: 0.58 mol/l at 25 °C		
in hexane	: 0.50 mol/l at 25 °C		
in chloroform	: 1.00 mol/l at 25 °C		

9.2 Other Information:

Ignition temperature : not available

Melting point : 150-152 °C lit.

10.0 Stability and Reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

The product is stable in normal conditions of use and storage. In the event of thermal decomposition or fire, vapours potentially dangerous to health may be released.

10.3 Possibility of hazardous reactions

Reacts violently with water.

10.4 Conditions to avoid

Air and moisture sensitive. Keep away from sparks.

10.5 Incompatible materials

Water, alcohols, acids, strong oxidizing agents, organic peroxide.

10.6 Hazardous decomposition products

Borane/boron oxides, 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

Skin Contact : May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact : May cause eye irritation.

Inhalation : May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion : May be harmful if swallowed.

Additional information

RTECS : unlisted

12.0 Ecological Information

12.1 Toxicity

- not available
- 12.2 Persistence and degradability**
not available
- 12.3 Bioaccumulative potential**
not available
- 12.4 Mobility in soil**
not available
- 12.5 PBT and vPvB assessment**
not available
- 12.6 Other adverse effects**
not available

13.0 Disposal Considerations

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**
3396
- 14.2 UN proper shipping name**
Organometallic substance, solid, water-reactive, flammable (9-Borabicyclo[3.3.1]nonane, dimer)
- 14.3 Transport hazard class(es)**
GGVS/GGVE/ADR/RID: 4.3 (4.1), Hazard Identification: 423, Classification: WF2, Tunnel Code:(D/E)
IMO/GGVSee: 4.3 (4.1), MFAG: 4.2, EmS: F-G, S-N; Stowage: E
ICAO/IATA: 4.3 (4.1), PAX: 483, CAO: 489
- 14.4 Packaging group**
GGVS/GGVE/ADR/RID: II IMO/GGVSee: II ICAO/IATA: II
- 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 material safety data sheet was prepared in compliance with laws, regulations and administrative provisions relative to classification, packaging and labelling of dangerous substances and preparations.

This information is to the best of Aviabor's current 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 disclaim any liability for loss or damage suffered from use of this information. Customers must satisfy themselves that the product is suitable for a particular purpose. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents.