# SAFETY DATA SHEET

**Creation Date** 07-Aug-2003 **Revision Date** 10-Jan-2011 **Revision Number** 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier**

**Product Description:** **9-Borabicyclo[3.3.1]nonane, 0.5M solution in THF**
**Cat No.** **165810000; 165811000; 165818000**
**Synonyms** 9-BBN

**Relevant identified uses of the substance or mixture and uses advised against**

**Recommended Use** Laboratory chemicals
**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**

**Company**
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
**E-mail address** begel.sdsdesk@thermofisher.com

**Emergency Telephone Number**
For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

## 2. HAZARDS IDENTIFICATION

**Classification of the substance or mixture**
**REGULATION (EC) No 1272/2008**

| | |
|---|---|
| Serious Eye Damage/Eye Irritation | Category 2 |
| Specific target organ systemic toxicity (single exposure) | Category 3 |
| Flammable liquids. | Category 2 |
| Substances/mixtures which, in contact with water, emit flammable gases | Category 1 |

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

*For the full text of the R phrases mentioned in this Section, see Section 16*

**Symbol(s)** F - Highly flammable
Xi - Irritant
**R -phrase(s)** R11 - Highly flammable
R19 - May form explosive peroxides
**Risk Combination Phrases** R14/15 - Reacts violently with water, liberating extremely flammable gases
R36/37 - Irritating to eyes and respiratory system

## 2. HAZARDS IDENTIFICATION

**Label Elements**

**Signal Word** **Danger**

**Hazard Statements**
H260 - In contact with water releases flammable gases which may ignite spontaneously
H225 - Highly flammable liquid and vapor
H335 - May cause respiratory irritation
H319 - Causes serious eye irritation
EUH014 - Reacts violently with water
EUH019 - May form explosive peroxides

**Precautionary Statements - EU (§28, 1272/2008)**
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P223 - Keep away from any possible contact with water, because of violent reaction and possible flash fire

**Other Hazards**
No information available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | EC No. | Weight % | CAS-No | Classification | GHSCLAS | REACH Reg. No. |
|---|---|---|---|---|---|---|
| Tetrahydrofuran<br>109-99-9 | EEC No. 203-726-8 | 92-94 | 109-99-9 | F;R11<br>R19<br>Xi;R36/37 | Eye Irrit. 2 (H319)<br>STOT SE 3 (H335)<br>Flam. Liq. 2 (H225)<br>(EUH 019) | - |
| 9-Borabicyclo[3.3.1]nonane<br>280-64-8 | EEC No. 206-000-9 | 6-8 | 280-64-8 | F;R15<br>R14 | Water-react. 1 (H260)<br>(EUH 014) | - |

**For the full text of the R phrases mentioned in this Section, see Section 16**

## 4. FIRST AID MEASURES

**Description of first aid measures**

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes Obtain medical attention

**Skin Contact** Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes Obtain medical attention

**Ingestion** Clean mouth with water Get medical attention

**Inhalation** Remove from exposure, lie down Move to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration Obtain medical attention

**Notes to Physician** Treat symptomatically

## 5. FIRE-FIGHTING MEASURES

**Extinguishing media**

**Suitable Extinguishing Media**

Carbon dioxide ($CO_2$) Dry chemical Do not use a solid water stream as it may scatter and spread fire

**Extinguishing media which must not be used for safety reasons**

No information available.

**Special hazards arising from the substance or mixture**

Flammable Contact with water liberates toxic gas Water reactive Vapors may travel to source of ignition and flash back Produce flammable gases on contact with water

**Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

**Environmental precautions**

Prevent further leakage or spillage if safe to do so

**Methods and material for containment and cleaning up**

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

## 7. HANDLING AND STORAGE

Avoid contact with skin and eyes Do not breathe dust Do not breathe vapors or spray mist Use only in area provided with appropriate exhaust ventilation Use explosion-proof equipment Use only non-sparking tools Contents may develop pressure upon prolonged storage

**Conditions for safe storage, including any incompatibilities**

Keep in a dry, cool and well-ventilated place Keep away from heat and sources of ignition Flammables area Keep under nitrogen Keep away from water

**Specific End Uses**

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control parameters**

**Exposure limits**

| Component | European Union | The United Kingdom | France | Belgium | Spain |
|---|---|---|---|---|---|
| Tetrahydrofuran | | | VME: 150 mg/m$^3$<br>VME: 50 ppm<br>VLCT: 100 ppm<br>VLCT: 300 mg/m$^3$ | STEL: 100 ppm<br>STEL: 300 mg/m$^3$<br>TWA: 150 mg/m$^3$<br>TWA: 50 ppm | VLA-EC: 100 ppm<br>VLA-EC: 300 mg/m$^3$<br>VLA-ED: 50 ppm<br>VLA-ED: 150 mg/m$^3$ |

| Component | Italy | Portugal | The Netherlands | Finland | Denmark |
|---|---|---|---|---|---|
| Tetrahydrofuran | TWA: 150 mg/m$^3$<br>TWA: 50 ppm<br>STEL: 100 ppm<br>STEL: 300 mg/m$^3$ | STEL: 100 ppm<br>TWA: 50 ppm | STEL: 600 mg/m$^3$<br>TWA: 300 mg/m$^3$ | TWA: 150 mg/m$^3$<br>TWA: 50 ppm<br>STEL: 300 mg/m$^3$<br>STEL: 100 ppm | TWA: 148 mg/m$^3$<br>TWA: 50 ppm |

| Component | Austria | Switzerland | Poland | Norway | Ireland |
|---|---|---|---|---|---|
| Tetrahydrofuran | STEL: 300 mg/m$^3$<br>STEL: 100 ppm<br>MAK: 150 mg/m$^3$<br>MAK: 50 ppm | STEL: 300 mg/m$^3$<br>STEL: 100 ppm<br>MAK: 150 mg/m$^3$<br>MAK: 50 ppm | NDSCh: 300 mg/m$^3$<br>NDS: 150 mg/m$^3$ | TWA: 150 mg/m$^3$<br>TWA: 50 ppm | TWA: 118 mg/m$^3$<br>TWA: 40 ppm<br>STEL: 295 mg/m$^3$<br>STEL: 100 ppm<br>Skin |

**Derived No Effect Level (DNEL)** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

**Exposure controls**

**Engineering Measures** Ensure adequate ventilation, especially in confined areas Ensure that eyewash stations and safety showers are close to the workstation location

**Personal protective equipment**

**Eye Protection** Goggles

**Hand Protection** Protective gloves

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** No information available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Physical State** | Liquid |
| **Appearance** | Light yellow |
| **odor** | Petroleum distillates |
| **pH** | No information available. |
| **Vapor Pressure** | 162 mmHg @ 20 °C |
| **Vapor Density** | 4.2 |
| **Boiling Point/Range** | No information available. |
| **Melting Point/Range** | -105°C / -157°F |
| **Flash Point** | -17°C / 1.4°F |
| **Water Solubility** | Reacts with water |
| **Specific Gravity** | 0.894 |
| **Molecular Formula** | C8 H15 B |
| **Molecular Weight** | 122.02 |

## 10. STABILITY AND REACTIVITY

**Reactivity**

**Chemical Stability**

May form explosive peroxides. Stable under normal conditions. Moisture sensitive. Air sensitive.

**Possibility of Hazardous Reactions**

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions .** Reacts violently with water, liberating highly flammable gases.

**Conditions to Avoid**

Keep away from open flames, hot surfaces and sources of ignition, Exposure to air, Incompatible products, Exposure to moist air or water.

**Incompatible Materials**

Acids, Water, Alcohols, Bromine, Peroxides, Acid anhydrides, Acid chlorides.

**Hazardous Decomposition Products**

Carbon monoxide (CO). Carbon dioxide ($CO_2$). Hydrogen. Oxides of boron.

## 11. TOXICOLOGICAL INFORMATION

**Information on Toxicological Effects**

**Acute Toxicity**

**Product Information** No acute toxicity information is available for this product

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|

## 11. TOXICOLOGICAL INFORMATION

| | | | |
|---|---|---|---|
| Tetrahydrofuran | 1650 mg/kg ( Rat ) | | 180 mg/L ( Rat ) 1 h<br>53.9 mg/L ( Rat ) 4 h |

**Chronic Toxicity**

**Carcinogenicity** There are no known carcinogenic chemicals in this product

**Sensitization** No information available.
**Mutagenic Effects** No information available
**Reproductive Effects** No information available.
**Developmental Effects** No information available.
**Target Organs** No information available.
**Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information
**Endocrine Disruptor Information** None known

| Component | EU - Endocrine Disrupters Candidate List | EU - Endocrine Disruptors - Evaluated Substances | Japan - Endocrine Disruptor Information |
|---|---|---|---|
| Tetrahydrofuran | Group III Chemical | | |

## 12. ECOLOGICAL INFORMATION

**Toxicity**
**Ecotoxicity effects** Do not empty into drains

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| Tetrahydrofuran | | Leuciscus idus: LC50: 2820 mg/L/48h | | EC50: >10000 mg/L/24h |

**Persistence and degradability**
No information available

**Bioaccumulative potential**
No information available.

| Component | log Pow |
|---|---|
| Tetrahydrofuran | 0.45 |

**Mobility in soil**
No information available.

**Results of PBT and vPvB assessment**
**Other adverse effects**
No information available

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Waste from Residues / Unused Products** Dispose of in accordance with local regulations

**Contaminated Packaging** Empty containers should be taken for local recycling, recovery or waste disposal

## 14. TRANSPORT INFORMATION

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | 3148 |
| **Hazard Class** | 4.3 |
| **Subsidiary Hazard Class** | 3 |
| **Packing Group** | II |
| **Proper Shipping Name** | WATER-REACTIVE LIQUID, N.O.S. |

**ADR**

| | |
|---|---|
| **UN-No** | 3148 |
| **Hazard Class** | 4.3 |
| **Packing Group** | II |
| **Proper Shipping Name** | WATER-REACTIVE LIQUID, N.O.S. |

**IATA**

| | |
|---|---|
| **UN-No** | 3148 |
| **Hazard Class** | 4.3 |
| **Subsidiary Hazard Class** | 3 |
| **Packing Group** | II |
| **Proper Shipping Name** | WATER-REACTIVE LIQUID, N.O.S.* |

## 15. REGULATORY INFORMATION

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

**International Inventories**

| Component | EINECS | ELINCS | NLP | TSCA | DSL | NDSL | PICCS | ENCS | CHINA | AICS | KECL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Tetrahydrofuran | 203-726-8 | - | | T | X | - | X | X | X | X | KE-33454 X |
| 9-Borabicyclo[3.3.1]nonane | 206-000-9 | - | | - | - | - | - | - | - | - | - |

**Legend**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory Lists
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**CHINA** - China Inventory of Existing Chemical Substances
**AICS** - Inventory of Chemical Substances
**KECL** - Existing and Evaluated Chemical Substances

**Chemical Safety Assessment**

## 16. OTHER INFORMATION

**Text of R phrases mentioned in Section 2-3**
R11 - Highly flammable
R19 - May form explosive peroxides
R14/15 - Reacts violently with water, liberating extremely flammable gases
R36/37 - Irritating to eyes and respiratory system

**Revision Date** 10-Jan-2011
**Revision Summary** Not applicable
**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
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**End of Safety Data Sheet**