


**MATERIAL SAFETY DATA SHEET (MSDS)
according to Regulation (EC) No. 1907/2006
Version 2.0 Revision Date 04.04.2016**

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

- 1.1 Product identifiers** : Triisopropyl borate
EINECS : 226-529-9
CAS : 5419-55-6
RTECS : ED5950000
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
 as a fungicide;
 as an antiseptic agent;
 as an additive improving some qualities of motor fuels, lubricant oils, polymers.
- 1.3 Details of the supplier of the safety data sheet**
 JSC AVIABOR, Nizhny Novgorod Region
 606000 Dzerzhinsk, Russia
 Tel: (+7)-8313-249 727, Fax: (+7)-8313-249 767
 Only Representative – Espace Chemicals GmbH
 Tel: +49(0) 30 896779290 – 0, Fax: + 49(0) 30 896779290 - 1
- 1.4 Emergency telephone number** (+7)-8313-249 750/ 630

2.0 Hazards Identification

- 2.1 Classification of the substance or mixture**
 A white transparent liquid hydrolyzed by wet air into alcohol and boric acid. Avoid any inhalation, contact with skin and eyes. No manipulations with the product are allowed until precautions recommended by the manufacture are read and understood.
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)
Flam. Liq., 2 Eye Irrit., 2	H225 H319	 Danger	H225 H319	-

- 2.2 Label elements**
- Hazard Statement(s):**
 H225 Highly flammable liquid and vapour.
 H319 Causes serious eye irritation.
- Precautionary statement(s):**
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.
 Remove contact lenses, if present and easy to do. Continue rinsing.

3.0 Composition/information on ingredients

Triisopropyl borate	: 100 wt%
Trade names/Synonyms	: Boric acid triisopropyl ester, Triisopropoxyborane
Chemical formula	: B(OC ₃ H ₇) ₃ , C ₉ H ₂₁ BO ₃
CAS	: 5419-55-6
EINECS	: 226-529-9
Molar mass	: 188.08
Classification	: Flam. Liq. 2; Eye Irrit. 2; H225, H319

4.0 First Aid Measures

4.1 Description of first aid measures

After skin contact

Immediately wash the contaminated skin with water.

After eyes contact

Rinse out the eyes with plenty of water with the eyelids wide open. Immediately summon an eye-specialist.

After inhalation

Remove to fresh air. If breathing is difficult give oxygen. Take to hospital immediately.

After ingestion

Make 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

Water, foam, sand, powder extinguisher, CO₂.

Unsuitable extinguishing media

5.2 Special hazards arising from the substance or mixture

Development of toxic substances is possible in the event of fire.

5.3 Precautions for fire-fighters

Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6.0 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Suitable protective clothing.

6.2 Environmental precautions

Don't allow to enter sewerage system.

6.3 Methods and materials for containment and cleaning up

Dry the place of release with sand. Place to air-proof-containers 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 foods in a workroom is forbidden.

7.2 Conditions for safe storage, including any incompatibilities

Triisopropyl borate is stored in closed air and water-tight containers, in a well ventilated place far from the source of fire.

7.3 Specific end uses

no data available

8.0 Exposure Control and Personal Protection**8.1 Control parameters**

Components with workplace control parameters

8.2 Exposure controls

refer to section 7

Personal protective equipment**Normal use and handling:**

Respiratory : breathing mask or breathing apparatus

Hand protection : rubber gloves

Eye protection : closely fitting goggles

Skin protection : protective clothing

Emergency handling

Full protective clothing, including gloves and boots, self-contained breathing apparatus.

Technical equipment

Closed system, welded pipelines and other air-tight 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 the laundry regularly.

Obligatory take shower after work.

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

Colourless transparent liquid.

pH value at 10g/l H₂O : not available

Boiling point : 139-141 °C

Flash point : 17 °C - closed cup

Flammability : not available

Oxidizing properties : not available

Explosive properties : not available

Lower limit of the melting range : not available

Vapour pressure : 101 hPa at 75 °C

Partition coefficient : not available

Viscosity : not available

Vapor density : not available

Density : 0.815g/cm³, at 25 °C

Bulk density : not available

Decomposition temp. : not available

Surface tension : not available

Conductivity : not available

Enthalpy of Vaporization : not available

Solubility in water : hydrolyzes into isopropanol and boric acid

Solubility : soluble in toluene, diethyl ether, methylenchloride, THF and so on.

9.2 Other safety information

Ignition temperature : not identified

Melting point : not available

Refractivity index : 1.377

10.0 Stability and Reactivity**10.1 Reactivity**

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Reacts with water.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition productsHazardous decomposition products formed under fire conditions. - Carbon oxides
Borane/boron oxides.**11.0 Toxicological Information****11.1 Information on toxicological effects****Acute toxicity**LD₅₀ Oral (mouse) 2,500 mg/kg**Skin corrosion/ irritation**

No data available

Serious eye damage/ eye irritation

Eyes (rabbit) – Mild eye irritation

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

Potential health effects

- After skin contact : irritating
- After eye contact : irritating
- After inhalation : very harmful
- After ingestion : very harmful

Additional information

RTECS: ED5950000

12.0 Ecological Information**12.1 Toxicity** : N/A**12.2 Persistence and degradability** : N/A**12.3 Bioaccumulative potential** : N/A**12.4 Mobility in soil** : N/A**12.5 Results of PBT and vPvB assessment** : N/A**12.6 Other adverse effects** : N/A

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. Observe all federal, state, and local environmental regulations. 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**

2616

14.2 UN proper shipping name

Triisopropyl borate

14.3 Transport hazard class(es)

GGVS/GGVE/ADR/RID: 3, Hazard Identification: 33, Classification: F1, Tunnel Code: (D/E)

IMO/GGVSee: 3, MFAG: 240, EmS: F-E, S-D, Stowage category: B

ICAO/IATA: 3, PAX: 353, CAO: 364

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 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.

The data does not signify any warranty with regards to the product properties.