

1. Chemical and company identification

Name of chemical (Product name) TRONA® Elemental Boron

Manufacturer/Supplier

Company name Tronox LLC
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Country USA

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Emergency telephone number +1-760-476-3960 (Access code 333318)

Recommended use of the chemical and restrictions on use

Intended use Fuel in pyrotechnic devices.

Reference number B-5026

2. Hazards identification

GHS classification

Physical hazards The product is not classified according to GHS.

Health hazards Acute toxicity, oral Category 4

Environmental hazards The product is not classified according to GHS.

GHS label elements

Symbols



Signal words Warning

Hazard statement Harmful if swallowed.

Precautionary statements

Prevention Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

Storage Store away from incompatible materials.

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

3. Composition/information on ingredients

Substance or mixture Mixture

Components	CAS Number	Gazette notification		Concentration (%)
		ENCS No.	ISHL No.	
Boron	7440-42-8	Exempted	Exempted	84-92
Magnesium	7439-95-4	Exempted	Exempted	4-6

Chemical formula B (7440-42-8), mg (7439-95-4)

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First aid measures

If inhaled Move to fresh air. Get medical attention if any discomfort continues.

IF ON SKIN Flush skin thoroughly with water. Get medical attention if irritation develops and persists.

IF IN EYES Do not rub eyes. Immediately rinse eyes with water. Remove any contact lenses, and continue flushing eyes with running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Get immediate medical attention.

If swallowed Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Never give anything by mouth to an unconscious person. Get medical attention if any discomfort occurs. If ingestion of a large amount does occur, call a poison control centre immediately.

Most important symptoms/effects, acute and delayed	Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Protection of first-aid responders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Extinguishing media	DRY sand, sodium chloride powder, graphite powder or Met-L-X powder. Class D fire extinguisher.
Extinguishing media to avoid	Water.
Specific hazards	None known.
Special fire fighting procedures	Use standard firefighting procedures and consider the hazards of other involved materials.
Protection of fire-fighters	Firefighters should wear full protective clothing including self contained breathing apparatus. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
General fire hazards	Fine particles may form explosive mixtures with air.
Specific methods	Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency measures	Avoid inhalation of dust and contact with skin and eyes. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods or materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. The vacuum cleaner should be explosion-proofed. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Handling	
Technical measures (e.g. Local and general ventilation)	Provide appropriate exhaust ventilation at places where dust is formed. Take precautionary measures against static discharges when there is a risk of dust explosion. Use explosion-proof electrical equipment if airborne dust levels are high.
Safe handling advice	Minimise dust generation and accumulation. Avoid inhalation of dust and contact with skin and eyes. Dust clouds may be explosive under certain conditions. Use only with adequate ventilation. Use personal protection recommended in Section 8 of the SDS.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
Storage	
Safe storage conditions	Store away from incompatible materials (see Section 10 of the SDS).
Safe packaging materials	Store in tightly closed original container in a dry and cool place.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Engineering measures	Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high.
Personal protective equipment	
Respiratory protection	Wear respirator with dust filter. Seek advice from local supervisor.
Hand protection	Wear appropriate chemical resistant gloves.
Eye protection	Wear dust-resistant safety goggles where there is risk of eye contact.
Skin and body protection	Protective clothing is not required under normal conditions.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Powder.
Colour	Brown. / Black.
Odour	Slight.

pH	Not applicable.
Melting point/freezing point	2167 °C (3932.6 °F)
Boiling point, initial boiling point, and boiling range	3658 °C (6616.4 °F)
Flash point	Not available.
Combustion characteristics (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.

Vapour pressure Not available.

Vapour density Not available.

Specific gravity Not available.

Solubility(ies)

Solubility (water) Insoluble in water.

Partition coefficient (n-octanol/water) Not applicable.

Auto-ignition temperature 580 °C (1076 °F)

Decomposition temperature Not available.

Viscosity (Coefficient of viscosity) Not applicable.

Other information

Bulk density 16 lb/ft³

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Stable under normal temperature conditions. However: Oxidizes slowly at room temperature.

Possibility of hazardous reactions Hazardous polymerisation does not occur.

Conditions to avoid Contact with incompatible materials. Avoid dust formation.

Incompatible materials Ignites in gaseous chlorine or fluorine at ambient temperature. Halogens. Strong oxidising agents.

Hazardous decomposition products In case of fire: Boron oxides. Magnesium oxides.

11. Toxicological information

Acute toxicity Harmful if swallowed.

Components	Species	Test results
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Boron (CAS 7440-42-8)

Acute

Oral

LD50

Rat

650 mg/kg

Skin corrosion/irritation Skin irritation occurs on contact with moist or wet skin.

Serious eye damage/eye irritation Dust may irritate the eyes.

Respiratory or skin sensitisation

Respiratory sensitisation No data available.

Skin sensitisation Not a skin sensitiser.

Germ cell mutagenicity This product is not reported to cause mutagenic effects in humans.

Reproductive toxicity Boron: High doses have demonstrated effects on fertility, testes, and developmental effects on the fetus in laboratory animals. Relevance of these findings to humans is uncertain.

Specific target organ toxicity - single exposure No data available.

Specific target organ toxicity - repeated exposure	No data available.
Aspiration hazard	Not applicable.
Other information	No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	The degradability of the product has not been stated.
Bioaccumulation	No data available on bioaccumulation.
Mobility in soil	The product is insoluble in water.
Hazardous to the ozone layer	No data available.
Other hazardous effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. Disposal considerations

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

National regulations Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Notifiable substances

Not regulated.

Labeling substances

Not regulated.

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Class I specified chemical substances

Not regulated.

Class II specified chemical substances

Not regulated.

Monitoring chemical substances

Not regulated.

Priority Assessment Chemical Substances (PACs)

Not regulated.

Law concerning Pollutant Release and Transfer Register

Specified class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 1 substances (substance name, ordinance number and content)

Boron compounds Ordinance No. 405 94 % (Boron)

Class 2 substances (substance name, ordinance number and content)

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Not regulated.

Air Law, Enforcement Rule Not regulated.

Explosives Control Act
Not regulated.

Water Pollution Control Act
BORON AND ITS COMPOUNDS (TOTAL B)

Sewage Act

BORON AND ITS COMPOUNDS-DISCHARGE TO RIVER (AS B) 10 mg/l

BORON AND ITS COMPOUNDS-DISCHARGE TO SEA (AS B) 230 mg/l

16. Other information

Bibliography

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"
JIS Z 7253:2012 Hazard communication of chemicals based on GHS – Labelling and Safety Data Sheet (SDS)
IARC: International Agency for Research on Cancer.
Registry of Toxic Effects of Chemical Substances (RTECS)

The information in the sheet was written based on the best knowledge and experience currently available.