

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011

Reviewed on 05/05/2010

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Boron oxide**Stock number:** 41786**CAS Number:**

1303-86-2

EINECS Number:

215-125-8

Index number:

005-008-00-8

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS08 Health hazard

H360 May damage fertility or the unborn child.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R60-61: May impair fertility. May cause harm to the unborn child.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T Toxic

Risk phrases:

60 May impair fertility

61 May cause harm to the unborn child

Safety phrases:

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately.

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	1
FIRE	0
REACTIVITY	0

Health (acute effects) = 1

Flammability = 0

Reactivity = 0

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

(Contd. on page 2)

USA

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Product name: Boron oxide**vPvB:** Not applicable.

(Contd. of page 1)

3 Composition/information on ingredients**Chemical characterization:** Substances**(CAS#) Description:**

Boron oxide (CAS# 1303-86-2)

Identification number(s):**EINECS Number:** 215-125-8**Index number:** 005-008-00-8**4 First aid measures****Description of first aid measures****After inhalation**Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.**After skin contact**Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.**5 Firefighting measures****Extinguishing media****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Boron oxide

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up: Ensure adequate ventilation.**Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires: The product is not flammable**Conditions for safe storage, including any incompatibilities****Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Store away from water/moisture.**Further information about storage conditions:**

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

- USA -

(Contd. on page 3)

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Printing date 05/28/2011

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Product name: Boron oxide

(Contd. of page 2)

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

Boron oxide

	mg/m ³
ACGIH TLV	10
Austria MAK	15
Denmark TWA	10
France VME	10
Germany MAK	15
Netherlands MAC-TGG	10
Norway TWA	10
Poland TWA	10
Switzerland MAK-W	10; 50-KZG-W
United Kingdom TWA	10; 20-STEL
USA PEL	15 (total dust)
	5 (respirable fraction)

Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:

Check protective gloves prior to each use for their proper condition.

Impervious gloves

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties**Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Powder
Color:	White
Odor:	Odorless
Odour threshold:	Not determined.

pH-value (10 g/l) at 20°C (68 °F): 4

Change in condition

Melting point/Melting range:	ca 450°C (ca 842 °F)
Boiling point/Boiling range:	1860°C (3380 °F)
Sublimation temperature / start:	Not determined

Flash point: Not applicable

Flammability (solid, gaseous) Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Auto igniting: Not determined.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not applicable.

(Contd. on page 4)

USA

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(Contd. of page 3)

Density at 20°C (68 °F):	2.46 ±0.01 g/cm ³ (36 ±0.083 lbs/gal)
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with Water at 20°C (68 °F):	36 g/l
Segregation coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known**Incompatible materials:** Water/moisture**Hazardous decomposition products:**

No dangerous decomposition products known

Boron oxide

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	3163 mg/kg (mouse) (RTECS) 3150 mg/kg (rat) (RTECS)
Inhalative	LCLo/2H	150 mg/m ³ /2H (rat) (RTECS)

Primary irritant effect:**on the skin:** May cause irritation**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Kidney, Ureter, Bladder - urine volume increased.

Kidney, Ureter, Bladder - other changes in urine composition.

Kidney, Ureter, Bladder - incontinence

Sense Organs and Special Senses (Olfaction) - effect, not otherwise specified.

Lungs, Thorax, or Respiration - other changes.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Subacute to chronic toxicity:

Boron oxide has a relatively low acute toxicity. Swallowing large amounts may cause gastrointestinal symptoms.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

May impair fertility.

May cause harm to the unborn child.

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.

(Contd. on page 5)

USA

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(Contd. of page 4)

Additional ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations**Waste treatment methods**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

Not a hazardous material for transportation.

DOT regulations:

Hazard class: None

Land transport ADR/RID (cross-border)

ADR/RID class: None

Maritime transport IMDG:

IMDG Class: None

Marine pollutant: No

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: None

Special precautions for user Not applicable.

Transport/Additional information: Not dangerous according to the above specifications.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

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

Product related hazard informations:**Hazard symbols:**

T Toxic

Risk phrases:

60 May impair fertility

61 May cause harm to the unborn child

Safety phrases:

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

(Contd. on page 6)

USA

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(Contd. of page 5)

Contact:

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Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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