



WEST BENGAL CHEMICAL INDUSTRIES LIMITED

145/1, Jessore Road, Lake Town,

Kolkata – 700 089, India.

Phone: +9133 4025 1700 Fax: +9133 2574 7410

Email: webcil@wbcil.com

Website: www.wbcil.com

Section 1 - Chemical Product and Company Identification

1.1 MSDS Name: Boron Citrate

1.2 Product Code: BCT0506

1.3 Recommended use of the chemical and restrictions on use:

Ingredient for use in dietary supplements, food supplements, and other nutrition products.

1.4 Company Identification:

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Section 2: Hazards Identification

2.1 This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

2.1.1 Hazard classification:

Combustible dusts

Toxic to reproduction (Fertility) - Category 1B

Toxic to reproduction (Unborn child) - Category 1B

2.2 Signal Word:

Danger

2.3 Hazard statements:

USH01 May form combustible dust concentrations in air.

H360FD May damage fertility. May damage the unborn child.

2.4 Precautionary statements:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P308+P313 If exposed or concerned: Get medical advice/ attention.

P405 Store locked up.

P501 Dispose of contents/ container in accordance with national regulations.

2.5 Potential Acute Health Effects:



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Section 2: Hazards Identification

No data available.

2.6 Potential Chronic Health Effects:

2.6.1 Carcinogenic effects:

Not available.

2.6.2 Mutagenic effects:

Not available.

2.6.3 Teratogenic effects:

Not available.

2.6.4 Developmental toxicity:

Not available.

2.7 Repeated or prolonged exposure:

Not known to aggravate medical condition.

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

Hazard Symbol:

Xn = Harmful

Risk Phrases:

R60 = May impair fertility.

R61 = May cause harm to the unborn child.

2.9 Pictogram



Section 3: Composition / Information on Ingredients

3.1 Ingredient Name: Boron Citrate

3.2 Synonym: Boron (as citrate), Boron, [2-hydroxy-1,2,3-propanetricarboxylato(3-)]-, (T-4)-

3.3 Formula: $C_6H_5BO_7$

3.4 Molecular Weight: 199.91 g/mol

3.5 CAS No.- 74231-02-0

3.6 % wt: 100%



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Section 4: First Aid Measures

4.1 Description of first aid measures:

4.1.1 Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs. Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

4.1.2 Skin Contact:

Brush off loose particles from skin. Rinse with water

4.1.3 Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

4.1.4 Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed:

May cause eye/skin irritation

May cause gastrointestinal disturbances

May cause digestive (gastrointestinal) tract irritation

May cause abdominal pain, nausea, vomiting, diarrhea

May cause dehydration

May affect the liver

It may affect the kidneys

Central nervous system effects

4.3 Indication of any immediate medical attention and special treatment needed:

Notes to Physician: Treat symptomatically

Section 5: Fire Fighting Measures

5.1 Fire Fighting Media:

5.1.1 Suitable Extinguishing media:

Use water spray, alcohol and Instructions resistant foam, dry chemical or carbon dioxide.

5.2 Flammability of the Product:

Not available.



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Section 5: Fire Fighting Measures

5.3 Auto-Ignition Temperature:

Not available.

5.4 Flash Points:

Not available.

5.5 Flammable Limits:

Not available.

5.6 Products of Combustion:

Not available.

5.7 Fire Hazards in Presence of Various Substances:

Not available.

5.8 Hazardous thermal decomposition products:

Decomposition products may include the following materials: – carbon dioxide – carbon monoxide – metal oxide/oxides

5.9 Specific Hazards arising from Chemicals:

Fine dust clouds may form explosive mixtures with air.

5.10 Special protective actions for fire-fighters:

Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5.11 Special protective equipment for fire-fighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 Personal Protection

Wear a self-contained breathing apparatus, rubber boots and gloves, and disposable coveralls. Dispose of coveralls after use. Keep unprotected persons away.

6.1.2 For non-emergency personnel

Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

6.1.3 For emergency responders



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Section 6: Accidental Release Measures

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”.

6.2 Environmental Protection:

Keep spills out of sewers and bodies of water. Dike and contain the spill with inert material. Absorb on sand, vermiculite or diatomite. Transfer material to a container for disposal or recovery. Ventilate area and wash spill site after material pickup is complete.

6.3 Methods and material for containment and cleaning up:

6.3.1 Methods for containment

Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

6.3.2 Methods for cleaning up:

Sweep up and shovel into suitable containers for disposal. Use only non-sparking tools. Clean contaminated surface thoroughly.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

7.1.1 Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Minimize dust generation and accumulation. Avoid dust formation. Dry powders can build static electricity charges when subjected to friction of transfer and mixing operations. All equipment used when handling the product must be grounded. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Keep away from incompatible materials.

7.1.2 Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe vapors/dust. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

7.2 Storage:

Store in a tightly closed container in a dry, well-ventilated place.

7.2.1 Incompatible Materials: Oxidizing agents Acids Bases



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Section 8: Exposure Controls and Personal Protection

8.1 Airborne Exposure Limits:

No information found.

8.2 Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

8.3 Appropriate engineering controls:

Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure.

8.4 Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g., lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

8.4.1 Eyes:

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

8.4.2 Skin:

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

8.4.3 Hand protection:



Section 8: Exposure Controls and Personal Protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

8.4.4 Hygiene measures:

Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

8.4.5 Respiratory:

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.

8.5 Exposure Limits:

Consult local authorities for acceptable exposure limits.

8.6 Occupational Exposure limit:

No data available

8.7 Biological limit values:

No data available

Section 9: Physical and Chemical Properties

Appearance

Powder.

Color

Off-white to white



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Section 9: Physical and Chemical Properties

Odor	Odorless.
Odor threshold	Not available.
pH	6.2-10.5
Relative density	Not available.
Boiling Point	Not available.
Melting Point	Not available.
Flash point	Not available.
Relative density	> 0.4
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure (mm Hg)	Not available.
Vapor density	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Partition coefficient: n-octanol/water	Not available.
Solubility	Not available.
Viscosity	Not available.

Section 10: Stability and Reactivity

10.1 Reactivity:

No data available.

10.2 Stability:

Stable under normal temperatures and pressures.

10.3 Incompatible Materials:

Oxidizing agents Acids Bases

10.4 Possibility of hazardous reactions:

No potentially hazardous reactions known.

10.5 Conditions to Avoid:

Heat. Avoid dust formation. Dust may form explosive mixture in air. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

10.6 Hazardous Decomposition Product:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

10.7 Corrosivity:



Section 10: Stability and Reactivity

No information available.

Section 11: Toxicological Information

11.1 RTECS Reference:

Not Available

11.2 Toxicity Data:

Not Available

11.3 Target Organs:

Not Available

11.4 Skin corrosion/irritation:

Not Available

11.5 Serious eye damage/irritation:

Not Available

11.6 Oral woman LDLo:

Boric acid investigated as a mutagen, tumorigen, reproductive effector.

11.7 Reproductive Toxicity:

May impair fertility. May cause harm to the unborn child.

11.8 Carcinogenic Effects:

Not a reported carcinogen by IARC, NTP, ACGIH, OSHA.

11.9 Carcinogenicity:

Not Available

11.10 Respiratory sensitization:

Based on available data the classification criteria are not met.

11.11 Skin sensitization:

Based on available data the classification criteria are not met.

11.12 Germ cell mutagenicity:

Based on available data the classification criteria are not met.

11.13 Teratogenicity:

May damage the unborn child.

11.14 Developmental effects:

No known significant effects or critical hazards.

11.15 Fertility effects:

May damage fertility.



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Section 11: Toxicological Information

11.16 Specific target organ toxicity (single exposure):

There is no data available.

11.17 Specific target organ toxicity (repeated exposure):

There is no data available.

11.18 Aspiration Hazard:

There is no data available.

Section 12: 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.

Section 13: Disposal Considerations

Contact a licensed professional waste disposal service. Dispose in a manner consistent with federal, state and local environmental regulations.

Section 14: Transport Information

Category	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-



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Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

AERG: Not applicable.

14.1 Special Precautions for User:

Transport within user's premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.2 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not available.

14.3 D O T Classification:

Not a DOT controlled material

14.4 Air transport Goods:

Nonhazardous/non dangerous as per IATA DGR.

14.5 Special Provision for Transport:

Not applicable

14.6 IATA Specification:

Non-dangerous, non-hazardous

14.7 DOT (Pictograms):

AS PER IATA REGULATION SAFE FOR CARRAGE, NONHAZARDOUS AND NON-RESTRICTED. NO SPECIAL LABELLING OR TRANSPORT MEASURE HAVE BEEN IDENTIFIED. THIS IS NOT REGULATED AS PER IATA REGULATION



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Section 15: Regulatory Information

It should be noted that borates are safe under conditions of normal handling and use. They are essential nutrients to plants, and research shows that they play a beneficial role in human health.

United States

Toxic Substance Control Act (TSCA): Not listed

Superfund Amendments and Reauthorization Act (SARA 302): Not listed

Superfund Amendments and Reauthorization Act (SARA 311/312): Not listed

Superfund Amendments and Reauthorization Act (SARA 313): Not listed

European Union

European Inventory of Existing Chemical Substances (EINECS): Not Available

Hazard Codes: Not Available

Risk Statements: Not Available

Safety Statements: Not Available

Canada

Canadian Domestic Substances List (DSL): Not listed

Canadian Non-Domestic Substances List (NDSL): Not listed.

Section 16: Other Information



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