



**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@webcil.com](mailto:webcil@webcil.com)**

**Website: [www.webcil.com](http://www.webcil.com)**

## Section 1 - Chemical Product and Company Identification

**MSDS Name:** Boron Citrate

**Product Code:** BCT0506

**Company Identification:**

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## Section 2 - Composition / Information on Ingredients

**Formula:**  $C_6H_5BO_7$

**Molecular Weight:** 199.91 g/mol

**CAS No:** 74231-02-0

Ingredient Name	% wt
Boron Citrate	100%



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### Section 3 - Hazards Identification

**Reproductive toxicity Category 2**

**Potential Acute Health Effects:** No data available.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

Repeated or prolonged exposure is not known to aggravate medical condition.

**Signal Words:** Danger

**Hazard statements:**

H360: May damage fertility or the unborn child.

**Precautionary statements:**

P201: Obtain special instructions before use.

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

P281: Use personal protective equipment as required.

P308+313: IF exposed or concerned: Get medical advice/attention.

P405: Store locked up.

P501: Dispose of contents/container to authorized agents only.

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.



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### Section 4 - First Aid Measures

<b>Eye Contact:</b>	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.
<b>Skin Contact:</b>	
<b>Ingestion:</b>	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.
<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

### Section 5 - Fire-Fighting Measures

<b>Flammability of the Product</b>	: Not available.
<b>Auto-Ignition Temperature:</b>	: Not available.
<b>Flash Points</b>	: Not available.
<b>Flammable Limits</b>	: Not available.
<b>Products of Combustion</b>	: Not available.
<b>Fire Hazards in Presence of Various Substances</b>	: Not available.
<b>Fire Fighting Media and Instructions</b>	: Suitable Extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Specific Hazards arising from Chemicals</b>	: No data available.



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### **Section 6 - Accidental Release Measures**

**Personal Protection:**

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

Keep unprotected persons away.

**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.

### **Section 7 - Handling and Storage**

**Handling**

: Avoid breathing dust, vapor, mist or gas. Avoid contact with skin and eyes. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Open and handle container with care. Keep ignition sources away.

**Storage**

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

### **Section 8 - Exposure Controls / Personal Protection**

**Eyes**

: Wear appropriate protective eyeglass or chemical safety goggles. Make sure that there is an eyewash facility in your vicinity.

**Skin**

: Wear impervious gloves and protective clothing.

**Respiratory**

: Use a NIOSH approved respirator when exposure limits are exceeded or if irritation or other symptoms are experienced.

**Exposure Limits**

: Consult local authorities for acceptable exposure limits.

**Occupational Exposure limit value**

: No data available

**Biological limit values**

: No data available



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### Section 9 - Physical and Chemical Properties

Appearance Form	:	Powder
Color	:	Off-white to white
Odour	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Sublimation Temperature	:	No data available
Density	:	No data available
Vapour pressure	:	No data available
Vapour density	:	No data available
Refractive Index	:	No data available
Water solubility	:	No data available.
Decomposition temperature	:	No data available
Viscosity	:	No data available

#### Other safety information

Relative density : > 0.4

### Section 10 - Stability and Reactivity

Reactivity	:	No data available.
Stability	:	Stable under normal temperatures and pressures.
Incompatibility	:	No data available.
Conditions to Avoid	:	No data available.
Hazardous Decomposition Product	:	No data available.

### Section 11 - Toxicological Information

RTECS Reference	:	Not Available
Toxicological Information	:	Acute Toxicity:  Oral (Rat, female): LD50 > 2,000 mg/kg (OECD Test Guideline 423)  Inhalation (Rat, 4h): LC50 > 5.08 mg/l (aerosol, OECD Test Guideline 403)



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**Dermal:** No data available.

**Skin Corrosion/Irritation:**

**Skin (Rabbit):** No irritation (OECD Test Guideline 404).

**Serious Eye Damage/Eye Irritation:**

**Eyes (Rabbit):** No eye irritation (OECD Test Guideline 405).

**Respiratory or Skin Sensitization:**

**Mouse (Local lymph node assay, LLNA):** Negative result (OECD Test Guideline 429).

**Germ Cell Mutagenicity:**

**Ames Test (Escherichia coli/Salmonella typhimurium):** Negative with and without metabolic activation (OECD Test Guideline 471).

**Carcinogenicity:**

**IARC (International Agency for Research on Cancer):** No ingredient of this product present at levels  $\geq 0.1\%$  is identified as a probable, possible, or confirmed human carcinogen.

**NTP (National Toxicology Program):** No ingredient of this product present at levels  $\geq 0.1\%$  is identified as a known or anticipated carcinogen.

**OSHA:** No component of this product present at levels  $\geq 0.1\%$  is classified as a carcinogen.

**Reproductive Toxicity:**

May impair fertility or harm the unborn child (GHS classification, depending on exposure levels).

**Target Organs** : Not Available.



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## Section 12 - Ecological Information

### Toxicity

**Fish Toxicity:** Data for Boron Citrate itself is not widely available, but similar Boron compounds (e.g., borates) are known to be toxic to fish. The **LC50 (lethal concentration for 50% of the population)** for borates typically ranges between 30–200 mg/L, depending on the species and environmental conditions. Boron compounds are particularly toxic to fish at elevated concentrations.

**Daphnia (Water Fleas):** The **EC50 (effective concentration for 50% of the population)** for Daphnia (water fleas) exposed to borates is often in the range of **100–150 mg/L**.

**Algae:** Boron compounds can affect algae growth at concentrations as low as **1 mg/L**, inhibiting photosynthesis and growth. Studies suggest that high concentrations of Boron may reduce aquatic plant growth, particularly in freshwater ecosystems.

### Persistence and degradability

**Biodegradability:** Boron Citrate is expected to be **not biodegradable** under normal environmental conditions. Boron compounds, in general, are not subject to significant microbial breakdown, and thus may persist in the environment, particularly in aquatic systems.

**Degradation in water:** As an inorganic substance, Boron Citrate does not undergo typical biodegradation. In aquatic environments, it may remain in its ionic form (borate), which could be taken up by aquatic organisms over time, contributing to possible toxicity at high concentrations.

### Bioaccumulative potential

**Bioaccumulation:** Boron Citrate has a **low potential for bioaccumulation** in most organisms. While Boron can accumulate in plants and animals at high levels, it does not tend to concentrate significantly through the food chain. Nonetheless, prolonged exposure could result in measurable accumulation, particularly in aquatic organisms such as fish and crustaceans.

### Soil mobility

**Mobility in Soil:** Boron compounds, including Boron Citrate, can **leach into groundwater** under acidic conditions. The mobility of



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Boron in soil increases in acidic or neutral pH conditions, whereas it is less mobile in alkaline soils. If large quantities are introduced into soil, Boron may accumulate and negatively affect plant life.

**Soil Toxicity:** Boron is essential for plant growth in small amounts but can become toxic to plants at higher concentrations. Symptoms of Boron toxicity in plants include leaf necrosis and stunted growth. Boron Citrate could potentially cause **phytotoxicity** if concentrations exceed critical thresholds in agricultural settings.

**PBT and vPvB assessment** : Not Available.

**Other adverse effects:** : Boron compounds, including Boron Citrate, can have **adverse effects on terrestrial and aquatic ecosystems** when released in large amounts. In aquatic environments, it could disrupt the balance of ecosystems by inhibiting algae growth and affecting the reproductive systems of aquatic organisms.

**Nutrient Imbalance:** Excessive Boron levels can lead to nutrient imbalances in ecosystems. In soil, high concentrations of Boron could disrupt nutrient uptake in plants, leading to poor growth or plant death.

### 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

D O T Classification : Not a DOT controlled material  
Air transport Goods : Nonhazardous/non dangerous as per IATA DGR.  
Special Provision for Transport : Not applicable  
IATA Specification : Non-dangerous, non-hazardous.





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**DOT (Pictograms)**

AS PER IATA REGULATION SAFE FOR CARRAGE, NON-HAZARDOUS AND NON-RESTRICTED.

NO SPECIAL LABELLING OR TRANSPORT MEASURE HAVE BEEN IDENTIFIED.

THIS IS NOT REGULATED AS PER IATA REGULATION



### Section 15 - Regulatory Information

**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

**Disclaimer:** This material safety data sheet is provided as an information resource only. **WEST BENGAL CHEMICAL INDUSTRIES LIMITED** believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.

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**Revision No.: 03**