

Section 1. Product and Company Identification

Product Name Trimethyl borate
CAS Number 121-43-7

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CHEMTEL
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Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Acute toxicity - Oral: Category 3
Acute toxicity - Dermal: Category 3
Acute toxicity - Inhalation (Vapors): Category 3
Serious eye damage/eye irritation: Category 2
Specific target organ toxicity (single exposure): Category 1
Flammable Liquids: Category 2

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements: Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes serious eye irritation. Causes damage to organs. Highly flammable liquid and vapor.

Precautionary Statements

Prevention: Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection when handling. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed.

Ground/bond container and receiving equipment. Use explosion-proof equipment. Use only non-sparking tools. Take precautionary measures against static discharge



Response

IF exposed: Call a POISON CENTER or doctor/physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing, Get medical attention. Wash contaminated clothing before reuse.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a poison center or doctor/physician if you feel unwell.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

IN CASE OF FIRE: Use CO₂, dry chemical, or foam for extinction.

Storage: Store locked up. Store in a well-ventilated place. Keep cool

Disposal: Dispose of contents/container to an approved waste disposal plant

Other Hazards: Harmful to aquatic life with long lasting effects

Section 3. Composition / Information on Ingredients

Common Name Trimethyl borate
CAS Number 121-43-7

COMPONENT	CAS NUMBER	CONCENTRATION
Trimethyl borate	121-43-7	≤ 100%

Section 4. First Aid Measures

General Advice: Provide this SDS to medical personnel for treatment. Always contact physician or poison control center in case of medical emergency. Treatment may vary with condition of victim and specifics of the incident.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek medical attention

Skin Contact: Copiously flush skin with plenty of water for several minutes. Get medical attention if symptoms occur.

Inhalation: Remove victim to fresh air. Administer oxygen or artificial respiration only on physician's recommendation. Seek medical attention.

Ingestion: If swallowed, do not induce vomiting, immediately give several glasses of warm water. Do not give liquids if victim is unconscious or very drowsy. Seek medical attention immediately.

Symptoms

Inhalation: High vapor concentrations may cause irritation of eyes, nose and throat. Prolonged inhalation may cause headaches, nausea and drowsiness.

Eye contact: Contact may cause irritation to the eyes and mucus membranes.

Skin contact: Prolonged contact causes dryness and irritation.



Ingestion: Ingestion may cause headache, fatigue, nausea, circulatory and/or respiratory failure and death.

Chronic: Repeated and/or prolonged exposure by inhalation/absorption may cause systematic poisoning.

Indication of any immediate medical attention and special treatment needed if ingested

Notes to Physician: Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ethanol and fomepizole are effective antidotes for methanol poisoning, although fomepizole is preferred. Target organs for methanol: Kidneys, heart, central nervous system, liver, eyes.

Section 5. Firefighting Measures

Suitable Extinguishing Media: Dry Chemical, CO₂, Water Spray or Foam

Unsuitable Extinguishing Media: Not determined

Specific Hazards Arising from the Chemical: This product burns with a clear flame which is virtually invisible in daylight. Evacuate nonessential personnel from the fire area. Prevent human exposure to fire, smoke, fumes or products of combustion. Keep containers, which are exposed, to heat or fire cool with water spray to prevent rupture or build-up of pressure. Do not use welding or cutting torch on or near any shipping/storage container of this material, full or empty.

Sensitivity to Static Discharge: Take precautionary measures against static discharge.

Protective Equipment and Precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equal) and full protective gear.

Section 6. Accidental Release Measures

Personal Precautions: Extinguish all sources of ignition within 35 feet (11 m) of spill or vapor release. Provide adequate ventilation. If spill is of significant or unknown quantity, use self-contained breathing apparatus during clean-up. Always wear proper protective clothing to prevent skin or eye contact.

Methods and material for containment and cleaning up

Methods for Containment: Absorb and contain small spills with sand or fullers earth.

Methods for Clean-Up: Use clean non-sparking tools to collect absorbed material. Sweep up absorbed material and shovel into suitable containers for disposal. Large spills should be diluted and pumped into approved containers for disposal in accordance with all local, state, and federal laws and regulations.

Prevention of Secondary Hazards: Released product which has evaporated forms smooth, slippery surface on floors, posing an accident risk.

Section 7. Handling and Storage

Precautions for safe handling

Advice on Safe Handling: Always wear proper protective clothing when handling. Do not



breathe vapors. Avoid eye, skin and clothing contact when transferring from container. Flammable liquid - keep away from heat, sparks and flame. Never transfer liquid within 35 feet (11m) of an open flame. To reduce potential of sudden release of pressure, loosen closures slowly and cautiously before opening. To reduce potential of static discharge, effectively bond and ground containers when transferring material. Protect containers from physical damage or punctures resulting in leakage. Keep containers tightly closed when not in use. Do not reuse shipping containers. Empty containers retain vapors and must be treated as having the same hazards as containers full of liquid. Many plastics are attacked by this product. Wash face, hands, and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only with adequate ventilation. Use spark-proof tools and explosion-proof equipment.

Conditions for safe storage, including any incompatibilities

Storage Conditions: Store in accordance with 29 CFR §1910.106 Flammable and Combustible Liquids, BOCA National Fire Prevention Code, NFPA 30 Flammable and Combustible Liquids Code and all local codes and regulations. Store in a cool, well-ventilated area at least 35 feet (11m) from open flames or other sources of ignition. Always store product in the original shipping container. Tightly close storage containers after transfer. Vapors can travel to a source of ignition and flash back. Moisture, in any form will contaminate this product, rendering it unusable. Retain all original labels. Store away from foodstuffs or animal feed. Prevent container damage. Store locked up.

Incompatible Materials: Avoid strong oxidizing agents, such as peroxides, nitrates and hypochlorites; aluminum and zinc. Deteriorates many plastics. Will hydrolyze in the presence of water, liberating boric acid.

Section 8. Exposure Controls / Personal Protection

Exposure Guidelines: Contains no substances with occupational exposure limits

Other Information

When Brazing: Use enough ventilation and local exhaust at the flame site to keep the fumes and gases below the TLV-TWA (Threshold Limit Value - Time Weighted Average) for welding fumes in the brazer's breathing zone and in the general air. Use an approved air-purifying or air supplied respirator when brazing in a confined space or where local exhaust or ventilation does not keep exposure below the TLV-TWA. Refer to the current American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents for the most updated exposure limits. As outlined by the ANSI/AWS A5.31-92 (A4.1), Specifications For Fluxes For Brazing And Braze Welding, there are five predominant variables, which contribute to the quality and quantity of fumes in the affected area which brazing operators and bystanders are exposed to during the brazing process. These include (but are not limited to):

- 1) Dimension of the brazing area - with attention to ceiling height.
- 2) The total number of brazers working in the given space.
- 3) Depending on the material and process utilized, the rate of formation of fumes, gases or dusts from the process.
- 4) The location of the brazer in relation to the fumes in the affected area.
- 5) Exhaust and/or ventilation available in the brazing area.



Important!: Read and understand the manufacturer's instructions and precautionary labels on the product. The installation, operation, and maintenance of welding equipment should conform to ANSI Standard Z49.1 Safety in Welding and Cutting, ANSI Standard Z87.1 Occupational and Educational Eye and Face Protection, and OSHA Standard, 29 CFR 1910.

Appropriate engineering controls

Engineering Controls: Apply technical measures to comply with the occupational exposure limits. Practice good hygiene.

Individual protection measures, such as personal protective equipment when handling

Eye/Face Protection

When Transferring/Handling: Due to the possibility of eye contact during material transfer, chemical safety goggles, full face shield, or safety glasses with side shields should be worn.

When Brazing: Always wear protective glasses, goggles or full face shield with shade 4 or 5 lenses when brazing. Protective eyewear and eye safety programs should comply with ANSI Standard Z87.1 Occupational and Educational Eye and Face Protection.

Skin and Body Protection: To prevent contact with skin, wear impervious clothing such as gloves, apron, boots, or full-body suits made from neoprene, as appropriate.

Respiratory Protection

When Transferring/Handling: Ventilation may be required when handling or using this product to keep exposure to airborne contaminants below permissible exposure limits. If adequate ventilation is not available during handling or transfer of this product, use NIOSH approved organic vapor respirators with dust, mist and fume filters to reduce the potential of inhalation exposure. Protection provided by air-purifying respirators is limited. Use a positive pressure, air supplied respirator if there is any potential for uncontrolled release, unknown exposure levels, or any other circumstances where air-purifying respirators may not provide adequate protection. Respiratory protection programs must follow OSHA's 29 CFR 1910.134 And ANSI Z88.2 requirements where there may be the potential for airborne exposure.

General Hygiene Considerations: Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

Section 9. Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear, colorless liquid

Color: Colorless

Odor: Characteristic

Odor Threshold: Not determined

pH: Not determined

Melting Point/Freezing Point: -31 °C / -24° F

Boiling Point/Boiling Range: 69 °C / 156° F

Flash Point: -7 °C / 19.4°F COC



Evaporation Rate: Not determined
Flammability (Solid, Gas): Not determined
Upper Flammability Limits: Not determined
Lower Flammability Limit: Not determined
Vapor Pressure: 111 mm Hg
Vapor Density: 3.59 (Air=1)
Specific Gravity: Not determined
Water Solubility: Decomposes in contact with water
Solubility in other solvents: Not determined
Partition Coefficient: Not determined
Auto-ignition Temperature: Not determined
Decomposition Temperature: Not determined
Kinematic Viscosity: Not determined
Dynamic Viscosity: Not determined
Explosive Properties: Not determined
Oxidizing Properties: Not determined

Section 10. Stability and Reactivity

Reactivity: Not reactive under normal conditions.

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to Avoid: Water, moist air or aqueous liquids will liberate borates from the mixture, rendering it unusable. Keep containers tightly closed when not in use. This product is not sensitive to physical impact. Keep away from Heat, Flame and Sparks.

Incompatible Materials: Avoid strong oxidizing agents, such as peroxides, nitrates and hypochlorites; aluminum and zinc.

Hazardous Decomposition By-products (During Brazing): Brazing fumes and gases cannot be classified simply. The composition and quantity of the fumes and gases are dependent upon the base metal, the flux and filler metal being used. Coatings or residue on the base metal such as cleaning or degreasing agents, paint, galvanizing or plating will produce fumes as well. Other conditions which influence the composition and quality of the fumes and gases to which workers may be exposed are: the number of operators relative to the volume of the work area, the quality and amount of ventilation, the position of the brazer's head in respect to the fume plume, as well as the presence of contaminants in the atmosphere such as halogenated hydrocarbon vapors from cleaning and degreasing activities. Fume ingredients of normal operation include those originating from volatilization, reaction, or oxidation of the materials noted in the above paragraph. Reasonably expected fume constituents include oxides of boron (OSHA PEL of 10 mg/m³ and ACGIH (TLV) of 2 mg/m³) and oxides of carbon.

Section 11. Toxicological Information

Information on likely routes of exposure

Product Information

Eye Contact: Causes serious eye irritation.

Skin Contact: Harmful in contact with skin.

Inhalation: Harmful if inhaled.

Ingestion: Harmful if swallowed. May cause blindness if swallowed.

Component Information

Trimethyl borate 121-43-7

Oral LD50: 6140 mg/kg (Rat)

Dermal LD50: 1980 µL/kg (Rabbit)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure: Causes damage to organs.

Chronic toxicity: Repeated and/or prolonged exposure by inhalation/absorption may cause systemic poisoning, organ damage and death.

Numerical measures of toxicity: Not determined

Section 12. Ecological Information

Ecotoxicity: Harmful to aquatic life with long lasting effects.

Component Information

Methanol: 28200: 96 h Pimephales promelas mg/L LC50 flowthrough 100: 96 h Pimephales promelas mg/L LC50 static 19500 - 20700: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 18 - 20: 96 h Oncorhynchus mykiss mL/L LC50 static 13500 - 17600: 96 h Lepomis macrochirus mg/L LC50 flow-through

Persistence/Degradability: Not determined.

Bioaccumulation: Does not occur. Partition coefficient: n-octanol/water log POW:-1899

Mobility

Methanol 67-56-1: Partition coefficient -0.77

Other Adverse Effects: Not expected to absorb into soil.



Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Note: Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No: UN2416

Proper Shipping Name: Trimethyl Borate

Hazard Class: 3

Packing Group: II

Reportable Quantity (RQ)

IATA

UN/ID No: UN2416

Proper Shipping Name: Trimethyl Borate

Hazard Class: 3

Packing Group: II

IMDG

UN/ID No: UN2416

Proper Shipping Name: Trimethyl Borate

Hazard Class: 3

Packing Group: II

Section 15. Regulatory Information

International Inventories: May not be placed on the market as biocide, or used as substance or constituent in preparations which act as biocide.

US Federal Regulations

CERCLA

Methanol 67-56-1

Hazardous Substances RQs: 5000 lb

Reportable Quantity (RQ): RQ 5000 lb final RQ; RQ 2270 kg final RQ

SARA 311/312 Hazard Categories

Acute Health Hazard: Yes

Chronic Health Hazard: Yes

Fire Hazard: Yes



Sudden Release of Pressure Hazard: No

Reactive Hazard: No

SARA 313: None

US State Regulations

California Proposition 65: This product contains no Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Trimethyl borate 121-43-7	x	x	x

NFPA

Health Hazards: 2

Flammability: 3

Instability: 0

HMIS

Health Hazards: 2

Flammability: 3

Physical Hazards: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

REVISION DATE: 10/3/2017