

# Material Safety Data Sheet

| HAZARD WARNINGS                                                                                                                                                     | RISK PHRASES                                                                                                                                                                      | PROTECTIVE CLOTHING                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|   | <b>Corrosive to eyes and skin on contact.</b><br><b>Harmful compound, minimize exposure.</b><br><b>Lachrymator.</b><br><b>Moisture sensitive material.</b><br><b>Refrigerate.</b> |  |

## Section I. Chemical Product and Company Identification

|                  |                                 |                                                                                                                                                                                    |                                                                       |
|------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Chemical Name    | <b>4-Bromocrotonic Acid</b>     |                                                                                                                                                                                    |                                                                       |
| Catalog Number   | B2298                           | Supplier                                                                                                                                                                           | TCI America<br>9211 N. Harborage St.<br>Portland OR<br>1-800-423-8616 |
| Synonym          | 2-Butenoic Acid, 4-Bromo (9 Cl) | <div style="border: 2px solid black; padding: 5px;"> <b>In case of<br/>Emergency<br/>Call</b> <b>Chemtrec®<br/>(800) 424-9300 (U.S.)<br/>(703) 527-3887 (International)</b> </div> |                                                                       |
| Chemical Formula | BrCH <sub>2</sub> CH:CHCOOH     |                                                                                                                                                                                    |                                                                       |
| CAS Number       | 20629-35-0                      |                                                                                                                                                                                    |                                                                       |

## Section II. Composition and Information on Ingredients

| Chemical Name        | CAS Number | Percent (%) | TLV/PEL        | Toxicology Data |
|----------------------|------------|-------------|----------------|-----------------|
| 4-Bromocrotonic Acid | 20629-35-0 | -----       | Not available. | Not available.  |

## Section III. Hazards Identification

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute Health Effects   | Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
| Chronic Health Effects | <b>CARCINOGENIC EFFECTS</b> : Not available.<br><b>MUTAGENIC EFFECTS</b> : Not available.<br><b>TERATOGENIC EFFECTS</b> : Not available.<br><b>DEVELOPMENTAL TOXICITY</b> Not available.<br>Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.                                                                                                                                                                                                                                                            |

## Section IV. First Aid Measures

|              |                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                  |
| Skin Contact | In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.                                                                                                                                                          |
| Inhalation   | If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.                                                                                               |
| Ingestion    | DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. |

## Section V. Fire and Explosion Data

|                                      |                                                                                                                                                                                                        |                  |                |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|
| Flammability                         | May be combustible at high temperature.                                                                                                                                                                | Auto-Ignition    | Not available. |
| Flash Points                         | Not available.                                                                                                                                                                                         | Flammable Limits | Not available. |
| Combustion Products                  | These products are toxic carbon oxides (CO, CO <sub>2</sub> ), halogenated compounds.                                                                                                                  |                  |                |
| Fire Hazards                         | Not available.                                                                                                                                                                                         |                  |                |
| Explosion Hazards                    | Risks of explosion of the product in presence of mechanical impact: Not available.<br>Risks of explosion of the product in presence of static discharge: Not available.                                |                  |                |
| Fire Fighting Media and Instructions | SMALL FIRE: Use DRY chemical powder.<br>LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.<br>Consult with local fire authorities before attempting large scale fire-fighting operations. |                  |                |

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Emergency phone number (800) 424-9300

**Section VI. Accidental Release Measures****Spill Cleanup  
Instructions**

Corrosive solid. Harmful material. Lachrymatory material. Moisture sensitive material. Refrigerate material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage****Handling and Storage  
Information**

CORROSIVE. HARMFUL. LACHRYMATOR. MOISTURE SENSITIVE. REFRIGERATE. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents.

**Section VIII. Exposure Controls/Personal Protection****Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection**

Face shield. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits**

Not available.

**Section IX. Physical and Chemical Properties****Physical state @ 20°C**

Solid.

**Solubility**

Not available.

**Specific Gravity**

Not available.

**Molecular Weight**

164.99

**Partition Coefficient**

Not available.

**Boiling Point**

Not available.

**Vapor Pressure**

Not applicable.

**Melting Point**

70 to 75°C (158 to 167°F)

**Vapor Density**

Not available.

**Refractive Index**

Not available.

**Volatility**

Not available.

**Critical Temperature**

Not available.

**Odor**

Not available.

**Viscosity**

Not available.

**Taste**

Not available.

**Section X. Stability and Reactivity Data****Stability**

This material is stable if stored under proper conditions. (See Section VII for instructions)

**Conditions of Instability**

Protect from moisture. Avoid excessive heat and light.

**Incompatibilities**

Reactive with strong oxidizing agents.

**Section XI. Toxicological Information****RTECS Number**

Not available.

**Routes of Exposure**

Eye Contact. Ingestion. Inhalation. Skin contact.

**Toxicity Data**

Not available.

**Chronic Toxic Effects**

**CARCINOGENIC EFFECTS** : Not available.

**MUTAGENIC EFFECTS** : Not available.

**TERATOGENIC EFFECTS** : Not available.

**DEVELOPMENTAL TOXICITY** : Not available.

Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

**Acute Toxic Effects**

Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity Not available.

Environmental Fate Not available.

**Section XIII. Disposal Considerations**

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

**Section XIV. Transport Information**

DOT Classification Class 8: Corrosive material

PIN Number UN3261

Proper Shipping Name Corrosive solid, acidic, organic, n.o.s.

Packing Group (PG) III

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This product is **NOT** on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list:  
 (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec.  
 (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.

WHMIS Classification (Canada) CLASS E: Corrosive solid.

EINECS Number (EEC) Not available.

EEC Risk Statements R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
 R34- Causes burns.

Japanese Regulatory Data Not available.

**Section XVI. Other Information****Version 1.0****Validated on 6/11/2004.****Printed 1/25/2005.****Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.