Material Safety Data Sheet

2-Bromothiophene

MSDS# 87259

Section 1 - Chemical Product and Company Identification

MSDS Name: 2-Bromothiophene
Catalog Numbers: AC154290000, AC154290050, AC154290500, AC154292500, CC13010DA, CC13010EA,
Synonyms: None

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

Company Identification: (USA)
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 1003-09-4
Chemical Name: 2-Bromothiophene
%
98%
EINECS#: 213-699-4

Hazard Symbols: T N
Risk Phrases: 10 22 23/24 36/37/38 51/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! May be fatal if absorbed through the skin. The toxicological properties of this material have not been fully investigated. Stench. Harmful if inhaled or swallowed. Combustible liquid and vapor. Causes eye, skin, and respiratory tract irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. May be fatal if absorbed through the skin.
Ingestion: Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation: Causes respiratory tract irritation. Harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures
Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Combustible liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available
Flash Point: 52 deg C (125.60 deg F)

Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available
NFPA Rating: health: 3; flammability: 2; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Wash area with soap and water. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep Handling: away from heat, sparks and flame. Avoid ingestion and inhalation. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep away from heat and flame.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a dry area. Keep refrigerated. (Store below 4°C/39°F.)

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Bromothiophene</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
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</tbody>
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OSHA Vacated PELs: 2-Bromothiophene: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Use only under a chemical fume hood.

Exposure Limits

Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: clear slight brown
Odor: Stench.
pH: Not available
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: 149 - 151 deg C @ 760.00mm Hg
Freezing/Melting Point: -10 deg C (14.00°F)
Decomposition Temperature: Not available
Solubility in water: immiscible with water
Specific Gravity/Density: 1.6840g/cm³
Molecular Formula: C₄H₃BrS
Molecular Weight: 163.03

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong bases.

Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide, hydrogen bromide, hydrogen sulfide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 1003-09-4: None listed
LD₅₀/LC₅₀: RTECS: Not available. Other: Oral, Rat: LD₅₀=200-250 mg/kg; Skin, rabbit: LD₅₀=134 mg/kg; Inhalation, rat: LC₅₀=1.04 mg/L/4Hr or 4.16 mg/L/1Hr.
Carcinogenicity: 2-Bromo thiophene - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: The toxicological properties have not been fully investigated.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: TOXIC LIQUIDS, FLAMMABLE, ORGANIC, N.O.S.
Hazard Class: 6.1
UN Number: UN2929
Packing Group: II
Canada TDG
Shipping Name: TOXIC LIQUID FLAMMABLE ORGANIC NO (2-BROMOTHIOPHENE)
Hazard Class: 6.103
UN Number: UN2929
Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T N

Risk Phrases:
- R 10 Flammable.
- R 22 Harmful if swallowed.
- R 23/24 Toxic by inhalation and in contact with the skin.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
- S 16 Keep away from sources of ignition - No smoking.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 1003-09-4: Not available

Canada

CAS# 1003-09-4 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1A, D2B, B3

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 1003-09-4 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

CAS# 1003-09-4 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 9/02/1997
Revision #7 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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