Section 1 - Chemical Product and Company Identification

MSDS Name: Thallium (I) Bromide, 99%
Catalog Numbers: AC175980000, AC175980100, AC175981000, AC318370000, AC318370100
Synonyms: None known.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticalsaan 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#: 7789-40-4
Chemical Name: Thallium bromide
%: >99
EINECS#: 232-163-0

Hazard Symbols: T+ N
Risk Phrases: 26/28 33 51/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Danger of cumulative effects. May cause eye, skin, and respiratory tract irritation. May be fatal if inhaled or swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Target Organs: Kidneys, liver, cardiovascular system, nervous system.

Potential Health Effects
Eye: May cause eye irritation.
Skin: May cause skin irritation. Excessive drying of the skin may result from repeated or prolonged contact. Exposure to bromides may cause rashes, especially of the face (resembling acne) and boils.
Ingestion: May be fatal if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause alopecia (loss of hair). Ingested thallium compounds are extremely toxic, causing convulsions, coma, conjunctivitis, runny nose, polyneuritis, motor and sensory peripheral neuropathy, encephalopathy, arterial hypertension, rapid heart rate, and skin eruptions.
Inhalation: May be fatal if inhaled. Inhalation of bromides may cause irritation of the upper respiratory tract and lung tissue.
Chronic: Chronic ingestion may cause bromism characterized by disturbances of the central nervous system, skin and digestive tract.

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

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician:

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.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available
NFPA Rating: health: 3; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

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

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use only in a chemical fume hood.

Storage: Store in a cool, dry place. Store in a tightly closed container.

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>Thallium bromide</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Thallium bromide: 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.

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 Respirators: 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: Powder
Color: light yellow
Odor: none reported
pH: Not available
Vapor Pressure: Not available
Vapor Density: 10
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: 815 deg C (1,499.00°F)
Freezing/Melting Point: 460 deg C (860.00°F)
Decomposition Temperature: Not available
Solubility in water: Insoluble
Specific Gravity/Density:
Molecular Formula: BrTl
Molecular Weight: 284.287

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, dust generation, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Thallium fumes, bromine.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 7789-40-4: XG3850000
LD50/LC50: RTECS: Not available.
Carcinogenicity: Thallium bromide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: See actual entry in RTECS for complete information.

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: THALLIUM COMPOUNDS, N.O.S.
Hazard Class: 6.1
UN Number: UN1707
Packing Group: II
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: T+ N

Risk Phrases:
- R 26/28 Very toxic by inhalation and if swallowed.
- R 33 Danger of cumulative effects.
- R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
- S 13 Keep away from food, drink and animal feeding stuffs.
- S 28A After contact with skin, wash immediately with plenty of water.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)
- CAS# 7789-40-4: Not available

Canada
- CAS# 7789-40-4 is listed on Canada's NDSL List
- Canadian WHMIS Classifications: D1A
  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# 7789-40-4 is listed on Canada's Ingredient Disclosure List

US Federal
TSCA
- CAS# 7789-40-4 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 9/02/1997
Revision #8 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.