1. Identification

Product Name: 1-Bromopropane

Cat No.: AC107310000; AC107310010; AC107310025; AC107310050; AC107312500; AC107315000

Synonyms: n-Propyl bromide

Recommended Use: Laboratory chemicals.

Uses advised against: No Information available

Details of the supplier of the safety data sheet:

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name: Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number:
For information US call: 001-800-ACROS-01
Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100
Europe: +32 14 57 52 99
CHEMTREC Tel. No.US: 001-800-424-9300
Europe: 001-703-527-3887

2. Hazard(s) identification

Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

- Flammable liquids: Category 2
- Skin Corrosion/irritation: Category 2
- Serious Eye Damage/Eye Irritation: Category 2
- Reproductive Toxicity: Category 1B
- Specific target organ toxicity (single exposure): Category 3
- Target Organs - Respiratory system, Central nervous system (CNS).
- Specific target organ toxicity - (repeated exposure): Category 2

Label Elements:

Signal Word: Danger

Hazard Statements:
- Highly flammable liquid and vapor
- Causes skin irritation
- Causes serious eye irritation
- May cause respiratory irritation
- May cause drowsiness or dizziness
- May damage fertility. May damage the unborn child
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
if eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>106-94-5</td>
<td>99</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated
1-Bromopropane

Inhalation
Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion
Call a physician immediately. Clean mouth with water.

Most important symptoms/effects
Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
- Water spray
- Carbon dioxide (CO₂)
- Dry chemical
- Chemical foam
- Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media
- No information available

Flash Point
- No information available

Method -

- No information available

Autoignition Temperature
- 490 °C / 914 °F

Explosion Limits
- Upper: No data available
- Lower: 4.60%

Sensitivity to Mechanical Impact
- No information available

Sensitivity to Static Discharge
- No information available

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
- Carbon monoxide (CO)
- Carbon dioxide (CO₂)
- Hydrogen halides

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

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Remove all sources of ignition. Take precautionary measures against static discharges. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

Environmental Precautions
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Methods for Containment and Clean Up

7. Handling and storage

Handling
Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Use explosion-proof equipment. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated
8. Exposure controls / personal protection

### Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>TWA: 0.1 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td></td>
<td>TWA: 10 ppm</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

**Personal Protective Equipment**

- **Eye/face Protection**: 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 and body protection**: Wear appropriate protective gloves and clothing to prevent skin exposure.
- **Respiratory Protection**: 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.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
<td>aromatic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-110 °C / -166 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>71 °C / 159.8 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point</td>
<td>-4.5 °C / 23.9 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower</td>
<td>4.60%</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>146 mmHg @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>4.34 (Air = 1.0)</td>
</tr>
<tr>
<td>Relative Density</td>
<td>1.353</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490 °C / 914 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.52 mPa.s at 20 °C</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C3 H7 Br</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>122.99</td>
</tr>
</tbody>
</table>

10. Stability and reactivity
1-Bromopropane

Reactive Hazard
None known, based on information available.

Stability
Stable under normal conditions.

Conditions to Avoid
Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

Incompatible Materials
Strong oxidizing agents, Strong bases, Metals

Hazardous Decomposition Products
Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen halides

Hazardous Polymerization
No information available.

Hazardous Reactions
None under normal processing.

11. Toxicological information

Acute Toxicity
No acute toxicity information is available for this product.

Product Information
Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>3600 mg/kg (Rat)</td>
<td>Not listed</td>
<td>253 g/m³ (Rat) 30 min</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products
No information available.

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

Irritation
No information available.

Sensitization
No information available.

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>106-94-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>A3</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
Ames test: positive.

Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
Teratogenic effects have occurred in experimental animals.

STOT - single exposure
Respiratory system Central nervous system (CNS)

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information
No information available

Other Adverse Effects
See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>Not listed</td>
<td>67.3 mg/L LC50 96 h</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Persistence and Degradability
Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its volatility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>2.1</td>
</tr>
</tbody>
</table>

**13. Disposal considerations**

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. Transport information**

**DOT**
- UN-No: UN2344
- Hazard Class: 3
- Packing Group: II

**TDG**
- UN-No: UN2344
- Hazard Class: 3
- Packing Group: II

**IATA**
- UN-No: 2344
- Proper Shipping Name: BROMOPROPANES
- Hazard Class: 3
- Packing Group: II

**IMDG/IMO**
- UN-No: 2344
- Proper Shipping Name: BROMOPROPANES
- Hazard Class: 3
- Packing Group: II

**15. Regulatory information**

**International Inventories**

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>203-445-0</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- **X** - Listed
- **E** - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- **F** - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- **N** - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- **P** - Indicates a commenced PMN substance
- **R** - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- **S** - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- **T** - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- **XU** - Indicates an exempt polymer that is a number-average molecular weight of 1,000 or greater.
- **Y1** - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

**TSCA 12(b)**
Not applicable

**SARA 313**
Not applicable

**SARA 311/312 Hazardous Categorization**
1-Bromopropane

Revision Date 10-Feb-2015

Acute Health Hazard: Yes
Chronic Health Hazard: Yes
Fire Hazard: Yes
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

Clean Water Act: Not applicable
Clean Air Act: Not applicable
OSHA Occupational Safety and Health Administration: Not applicable
CERCLA: Not applicable
California Proposition 65: This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>106-94-5</td>
<td>Developmental</td>
<td>-</td>
<td>Developmental</td>
</tr>
</tbody>
</table>

State Right-to-Know:

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Propyl bromide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation:

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security:
This product does not contain any DHS chemicals.

Other International Regulations:

Mexico - Grade: No information available

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class:
B2 Flammable liquid
D2A Very toxic materials

16. Other information

Prepared By:
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date: 10-Feb-2015