

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 06/01/2011

Reviewed on 01/18/2007

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Propargyl bromide, 80% in toluene**Stock number:** A16580**CAS Number:**

106-96-7

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS02 Flame

H224 Extremely flammable liquid and vapour.



GHS06 Skull and crossbones

H300 Fatal if swallowed.



GHS05 Corrosion

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R25: Toxic if swallowed.



C; Corrosive

R34: Causes burns.



F; Highly flammable

R11: Highly flammable.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T Toxic

F Highly flammable

Risk phrases:

11 Highly flammable.

25 Toxic if swallowed.

34 Causes burns.

Safety phrases:

9 Keep container in a well-ventilated place.

16 Keep away from sources of ignition - No smoking.

20 When using do not eat or drink.

23 Do not breathe gas/fumes/vapour/spray.

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26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

33 Take precautionary measures against static discharges.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2
FIRE	3
REACTIVITY	1

Health (acute effects) = 2

Flammability = 3

Reactivity = 1

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**3 Composition/information on ingredients****Chemical characterization: Substances****(CAS#) Description:**

Propargyl bromide (CAS# 106-96-7); 80%

Toluene (CAS# 108-88-3); 20%

4 First aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**

In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

For safety reasons unsuitable extinguishing agents Water**Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen bromide (HBr)

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

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Keep away from ignition sources

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Do not distill to dryness.

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Pure propargyl bromide ignites on impact or detonates at 220°C. Addition of 20% toluene prevents impact and explosion instability. Do not distill!

Conditions for safe storage, including any incompatibilities**Storage****Requirements to be met by storerooms and receptacles:** Store in a cool location.**Information about storage in one common storage facility:**

Protect from heat.

Do not store together with strongly basic or oxidizing materials.

Reacts with certain metals.

Further information about storage conditions:

Refrigerate

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters**Components with limit values that require monitoring at the workplace:**

Toluene

ppm

ACGIH TLV 50 (skin); Not classified as a human carcinogen

Austria MAK 100

Belgium TWA 100; 150-STEEL

Denmark TWA 35 (skin)

Finland TWA 100; 150-STEEL (skin)

France VME 100; 150-VLE

Germany MAK 50

Hungary TWA 100; 300-STEEL (skin)

Japan OEL 50

Korea TLV 50

Netherlands MAC-TGG 40

Norway TWA 25

Poland TWA 100 mg/m³; 350 mg/m³-STEEL

Russia TWA 100; 50-STEEL

Sweden NGV 50; 100-TKV (skin)

Switzerland MAK-W 50; 250-KZG-W

United Kingdom TWA 50; 150-STEEL

OSHA PEL 200

Additional information: No data

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Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:**

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing.**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:****Form:**

Clear liquid

Color:

Pale

Light yellow

Odor:

Sharp odor

Odour threshold:

Not determined.

pH-value:

Not determined.

Change in condition**Melting point/Melting range:**

82-85°C (180-185 °F)

Boiling point/Boiling range:

Not determined

Sublimation temperature / start:

Not determined

Flash point:

18°C (64 °F)

Flammability (solid, gaseous)

Not applicable.

Ignition temperature:

Not determined

Decomposition temperature:

Not determined

Auto igniting:

Not determined.

Explosion limits:**Lower:**

Not determined

Upper:

Not determined

Vapor pressure:

Not determined

Density at 20°C (68 °F):1.33 g/cm³ (11.099 lbs/gal)**Relative density**

Not determined.

Vapour density

Not determined.

Evaporation rate

Not determined.

Segregation coefficient (n-octanol/water): Not determined.**Viscosity:****dynamic:**

Not determined.

kinematic:

Not determined.

Other information

No further relevant information available.

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions

Pure propargyl bromide ignites on impact. It also detonates at 220°C or when reacted with copper, high-copper alloys, mercury, or silver. It is extremely shock sensitive when mixed with chloropicrin. Addition of 20% toluene prevents impact and explosion instability.

Incompatible materials:

Heat

Oxidizing agents

Bases

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Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Hydrogen bromide

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Propargyl Bromide (CAS# 106-96-7)

Oral: LD50: 53 mg/kg (rat)

LD50: 26 µg/kg (gpg)

Toluene (CAS# 108-88-3)

Oral: LD50: 4000mg/kg (mam)

LD50: 636 mg/kg (rat)

LDLo: 50 mg/kg (hmn)

Inhalative: LC50/4 hours: 49000 mg/m3/4H (rat)

Primary irritant effect:**on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Lachrymatory effect.

Sensitization: No sensitizing effects known.**Subacute to chronic toxicity:**

Toluene is a skin and eye irritant. Exposure may cause impairment of coordination and reaction time. Chronic poisoning may result in blood, bone marrow or liver injury.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-3: Not classifiable as to carcinogenicity to humans.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.

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13 Disposal considerations**Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**14 Transport information****DOT regulations:**

Hazard class: 3
Identification number: UN2924
Packing group: II
Proper shipping name (technical name): FLAMMABLE LIQUID, CORROSIVE, N.O.S. (3-Bromopropyne in toluene)
Label 3+8

Land transport ADR/RID (cross-border)

ADR/RID class: 3 (FC) Flammable liquids
Danger code (Kemler): 338
UN-Number: 2924
Packaging group: II
UN proper shipping name: 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (3-Bromopropyne in toluene)

Maritime transport IMDG:

IMDG Class: 3
UN Number: 2924
Label 3+8
Packaging group: II
Marine pollutant: No
Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (3-Bromopropyne in toluene)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 2924
Label 3+8
Packaging group: II
Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (3-Bromopropyne in toluene)

UN "Model Regulation": UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S., 3 (8), II**Special precautions for user** Warning: Flammable liquids**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

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15 Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture****Product related hazard informations:****Hazard symbols:**

T Toxic

F Highly flammable

Risk phrases:

11 Highly flammable.

25 Toxic if swallowed.

34 Causes burns.

Safety phrases:

9 Keep container in a well-ventilated place.

16 Keep away from sources of ignition - No smoking.

20 When using do not eat or drink.

23 Do not breathe gas/fumes/vapour/spray.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

33 Take precautionary measures against static discharges.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.**Contact:**

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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