

1 Identification

Product identifier

Product name: Bromoacetaldehyde diethyl acetal

Stock number: A13276

CAS Number:

2032-35-1

EC number:

217-989-1

Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar
Thermo Fisher Scientific Chemicals, 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 business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H330 Fatal if inhaled.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

Flam. Liq. 4 H227 Combustible liquid.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS06

Signal word

Danger

Hazard statements

H227 Combustible liquid.

H301 Toxic if swallowed.

H330 Fatal if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P210 Keep away from flames and hot surfaces. No smoking.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

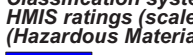
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B3 - Combustible liquid

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 2 Flammability = 2

REACTIVITY 1 Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Product name: *Bromoacetaldehyde diethyl acetal*

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Substances
CAS# Description:
2032-35-1 Bromoacetaldehyde diethyl acetal
Concentration: ≤100%
Identification number(s):
EC number: 217-989-1

4 First-aid measures

Description of first aid measures
General information
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing has been completely removed.
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 Seek medical treatment.
Information for doctor
Most important symptoms and effects, both acute and delayed
Causes skin irritation.
Causes serious eye irritation.
Fatal if inhaled.
Toxic if swallowed.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards arising from the substance or mixture
If this product is involved in a 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
Environmental precautions: Do not allow product to reach sewage system or any water course.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Prevention of secondary hazards: 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.
Protective Action Criteria for Chemicals
PAC-1: 12 mg/m3
PAC-2: 130 mg/m3
PAC-3: 790 mg/m3

7 Handling and storage

Handling
Precautions for safe handling
Handle under dry protective gas.
Keep container tightly sealed.
Ensure good ventilation at the workplace.
Open and handle container with care.
Prevent formation of aerosols.
Information about protection against explosions and fires: Keep ignition sources away.
Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles: Refrigerate
Information about storage in one common storage facility:
Protect from heat.
Store away from water/moisture.
Do not store together with acids.
Store away from oxidizing agents.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Protect from humidity and water.
Refrigerate
Specific end use(s) No further relevant information available.

Product name: Bromoacetaldehyde diethyl acetal

(Contd. of page 2)

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:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: No data

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.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.

Recommended filter device for short term use:

Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Material of gloves Fluorocarbon rubber (Viton)

Penetration time of glove material (in minutes) 480

Glove thickness: 0.7 mm

Eye protection: Safety glasses with side shields / NIOSH (US) or EN 166(EU)

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Odor: Not determined
Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range: Not determined
Boiling point/Boiling range: 66-67 °C (151-153 °F) (18mm)
Sublimation temperature / start: Not determined

Flash point: 61 °C (142 °F)
Flammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:

Lower: Not determined
Upper: Not determined
Vapor pressure: Not determined
Density at 20 °C (68 °F): 1.27 g/cm³ (10.598 lbs/gal)
Relative density Not determined.
Vapor density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Not miscible or difficult to mix
Partition 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 No information known.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts with strong oxidizing agents

Conditions to avoid No further relevant information available.

Incompatible materials:

Acids
Oxidizing agents
Heat
Water/moisture

Hazardous decomposition products:

Carbon monoxide and carbon dioxide
Hydrogen bromide




11 Toxicological information

Information on toxicological effects


Acute toxicity:

Fatal if inhaled.

(Contd. on page 4)
USA

Product name: Bromoacetaldehyde diethyl acetal		
(Contd. of page 3)		
Toxic if swallowed.		
LD/LC50 values that are relevant for classification:		
Oral	LD50	233 mg/kg (rat)
Inhalative	LC50/4H	0.61 mg/l/4H (rat)
Skin irritation or corrosion: Causes skin irritation.		
Eye irritation or corrosion: Causes serious eye irritation.		
Sensitization: No sensitizing effects known.		
Germ cell mutagenicity: No effects known.		
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.		
Reproductive toxicity: No effects known.		
Specific target organ system toxicity - repeated exposure: No effects known.		
Specific target organ system toxicity - single exposure: May cause respiratory irritation.		
Aspiration hazard: No effects known.		
Subacute to chronic toxicity: No effects known.		
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.		
12 Ecological information		
Toxicity		
Aquatic toxicity: No further relevant information available.		
Persistence and degradability No further relevant information available.		
Bioaccumulative potential No further relevant information available.		
Mobility in soil No further relevant information available.		
Additional ecological information:		
General notes:		
Do not allow product to reach ground water, water course or sewage system.		
Danger to drinking water if even small quantities leak into the ground.		
Avoid transfer into the environment.		
Results of PBT and vPvB assessment		
PBT: Not applicable.		
vPvB: Not applicable.		
Other adverse effects No further relevant information available.		
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		
UN-Number	UN2810	
DOT, IMDG, IATA		
UN proper shipping name	Toxic, liquids, organic, n.o.s. (Bromoacetaldehyde diethyl acetal)	
DOT	2810 Toxic, liquids, organic, n.o.s. (Bromoacetaldehyde diethyl acetal)	
ADR	TOXIC LIQUID, ORGANIC, N.O.S. (Bromoacetaldehyde diethyl acetal)	
IMDG, IATA		
Transport hazard class(es)		
DOT		
		
Class	6.1 Toxic substances	
Label	6.1	
ADR		
		
Class	6.1 (T1) Toxic substances	
Label	6.1	
IMDG, IATA		
		
Class	6.1 Toxic substances	
Label	6.1	
Packing group		
DOT, ADR, IMDG, IATA	II	
Environmental hazards:	Not applicable.	
Special precautions for user	Warning: Toxic substances	
EMS Number:	F-A,S-A	
Stowage Category	B	
Stowage Code	SW2 Clear of living quarters.	
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.	
Transport/Additional information:		
DOT		
Quantity limitations	On passenger aircraft/rail: 5 L	
	On cargo aircraft only: 60 L	
Marine Pollutant (DOT):	No	
(Contd. on page 5)		

Product name: Bromoacetaldehyde diethyl acetal	
(Contd. of page 4)	
IMDG Limited quantities (LQ) Excepted quantities (EQ)	100 ml Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN 2810 TOXIC, LIQUIDS, ORGANIC, N.O.S. (BROMOACETALDEHYDE DIETHYL ACETAL), 6.1, II

15 Regulatory information	
Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms	
	
GHS06	
Signal word Danger	
Hazard statements	
H227 Combustible liquid.	
H301 Toxic if swallowed.	
H330 Fatal if inhaled.	
H315 Causes skin irritation.	
H319 Causes serious eye irritation.	
H335 May cause respiratory irritation.	
Precautionary statements	
P210 Keep away from flames and hot surfaces. No smoking.	
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.	
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P320 Specific treatment is urgent (see on this label).	
P405 Store locked up.	
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.	
National regulations	
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.	
All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).	
SARA Section 313 (specific toxic chemical listings) Substance is not listed.	
California Proposition 65	
Prop 65 - Chemicals known to cause cancer Substance is not listed.	
Prop 65 - Developmental toxicity Substance is not listed.	
Prop 65 - Developmental toxicity, female Substance is not listed.	
Prop 65 - Developmental toxicity, male Substance is not listed.	
Information about limitation of use: For use only by technically qualified individuals.	
Other regulations, limitations and prohibitive regulations	
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.	
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.	
Substance is not listed.	
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.	
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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.	
Department issuing SDS: Global Marketing Department	
Date of preparation/Revision: Print date, revision date and version number are in the header of each page.	
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)	
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
EINECS: European Inventory of Existing Commercial Chemical Substances	
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	
PBT: Persistent, Bioaccumulative and Toxic	
SVHC: Substances of Very High Concern	
vPvB: very Persistent and very Bioaccumulative	
ACGIH: American Conference of Governmental Industrial Hygienists (USA)	
OSHA: Occupational Safety and Health Administration (USA)	
NTP: National Toxicology Program (USA)	
IARC: International Agency for Research on Cancer	
EPA: Environmental Protection Agency (USA)	
Flam. Liq. 4: Flammable liquids – Category 4	
Acute Tox. 3: Acute toxicity – Category 3	
Acute Tox. 2: Acute toxicity – Category 2	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A	
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3	