



VINYL BROMIDE (D3, 98%) + HYDROQUINONE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 03/01/2011

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Version: 3.0

DLM-3344

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Substance name	: VINYL BROMIDE (D3, 98%) + HYDROQUINONE
EC Index-No.	: 602-024-00-2
EC-No.	: 209-800-6 (Unlabeled)
CAS-No.	: 4666-78-8
Product code	: DLM-3344
Formula	: CD ₂ =CDBr
Synonyms	: Bromoethylene

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

1.2.1. Relevant identified uses

Main use category	: Professional use
Industrial/Professional use spec	: For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000

cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)

International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Gas 1	H220
Press. Gas (Comp.)	H280
Carc. 1A	H350

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F+; R12

R5

Full text of R-phrases: see section 16

GHS-US classification

Flam. Gas 1	H220
Press. Gas (Comp.)	H280
Carc. 1A	H350

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Liver.

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H350 - May cause cancer (if inhaled, if swallowed, in contact with skin)

Precautionary statements (CLP) :

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H350 - May cause cancer (Dermal, Inhalation, oral)

Precautionary statements (GHS-US) :

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
VINYL BROMIDE (D3, 98%) + HYDROQUINONE	(CAS-No.) 4666-78-8 (EC-No.) 209-800-6 (Unlabeled) (EC Index-No.) 602-024-00-2	100	F+; R12 R5
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
VINYL BROMIDE (D3, 98%) + HYDROQUINONE	(CAS-No.) 4666-78-8 (EC-No.) 209-800-6 (Unlabeled) (EC Index-No.) 602-024-00-2	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Carc. 1A, H350

Full text of R- and H- phrases: see section 16

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Name	Product identifier	%	GHS-US classification
VINYL BROMIDE (D3, 98%) + HYDROQUINONE (Main constituent)	(CAS-No.) 4666-78-8	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Carc. 1A, H350

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.
First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. and soap. Get immediate medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: Contact may cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.
Chronic symptoms	: May cause cancer.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Suitable extinguishing agents: Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
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5.2. Special hazards arising from the substance or mixture

Fire hazard	: Extremely flammable gas.
Explosion hazard	: Contains gas under pressure; may explode if heated.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Avoid breathing vapors, mist, gas. Avoid dust formation.
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6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Clean up any spills as soon as possible, using an absorbent material to collect it. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. For large spills, confine the spill in a dike and charge it with wet sand or earth for subsequent safe disposal.
Methods for cleaning up	: This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

For further information refer to section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Provide adequate ventilation to minimize dust and/or vapor concentrations.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store in a well-ventilated place. Keep container tightly closed.
- Storage conditions : Store refrigerated (-5°C to 5°C). Protect from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

- Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
- Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



- Materials for protective clothing : Wear suitable protective clothing and gloves.
- Hand protection : Wear suitable protective clothing and gloves.
- Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.
- Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
- Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Gas
- Appearance : Liquefied gas
- Molecular mass : 109.97 g/mol (Labeled)
- Color : Colorless
- Odor : No data available
- Odor threshold : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : -139 °C (-218 °F) - lit
- Freezing point : No data available
- Boiling point : 16 °C (61 °F) at 1,000 hPa (750 mmHg) - lit
- Flash point : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : 1193 hPa (895 mmHg) at 20 °C (68 °F)
- Relative vapor density at 20 °C : 3.7 (Air = 1)
- Relative density : No data available
- Solubility : Water: 5.6 g/l
- Log Pow : 1.57
- Log Kow : No data available
- Viscosity, kinematic : No data available
- Viscosity, dynamic : No data available
- Explosive properties : No data available

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Oxidizing properties : No data available
Explosion limits : 5.6 - 13.5 % (V) at 1013 hPa (760 mmHg)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Bases, oxidizing agents.

10.6. Hazardous decomposition products

Formed under fire conditions - Carbon oxides, Hydrogen bromide gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

VINYL BROMIDE (D3, 98%) + HYDROQUINONE (4666-78-8)	
LD50 oral rat	500 mg/kg
ATE CLP (oral)	500.000 mg/kg body weight

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Genotoxicity in vivo - Rat - Inhalation. Morphological transformation. Genotoxicity in vivo - Mouse - Oral. DNA Damage

Carcinogenicity : Possible human carcinogen. Carcinogenicity - Rat - Inhalation. Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors. Blood: Lymphomas including Hodgkin's disease

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

IARC group : 2A

Symptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation.

Symptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation.

Symptoms/effects after eye contact : Contact may cause eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

Chronic symptoms : May cause cancer.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

No additional information available

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12.3. Bioaccumulative potential

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Log Pow	1.57
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
- Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
- Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

- UN-No.(DOT) : 1085
DOT NA no. UN1085

14.2. UN proper shipping name

- Proper Shipping Name (DOT) : Vinyl bromide, stabilized
Class (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
Hazard labels (DOT) : 2.1 - Flammable gas



- DOT Special Provisions (49 CFR 172.102) : N86 - UN pressure receptacles made of aluminum alloy are not authorized.
T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : 304
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
DOT RQ : 100 lbs.
Marine pollutant : No

14.3. Additional information

- Emergency Response Guide (ERG) Number : 116P
Other information : No supplementary information available.
Special transport precautions : IATA/DOT: Not permitted on passenger aircraft.

Overland transport

- Class (ADR) : 2 - Gases
Hazard identification number (Kemler No.) : 239
Classification code (ADR) : 2F

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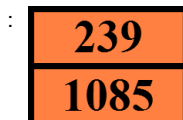
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Hazard labels (ADR) : 2.1 - Flammable gases



Orange plates



Tunnel restriction code (ADR) : B/D

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

MFAG-No : 116P

Air transport

DOT Quantity Limitations Passenger aircraft/rail : Forbidden
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 150 kg
CFR 175.75)

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

Special transport precautions : IATA/DOT: Not permitted on passenger aircraft.

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

VINYL BROMIDE (D3, 98%) + HYDROQUINONE (4666-78-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
SARA Section 311/312 Hazard Classes	Fire hazard Acute Health Hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Subject to reporting requirements of the United States SARA Section 313

15.2. International regulations

CANADA

VINYL BROMIDE (D3, 98%) + HYDROQUINONE (4666-78-8)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

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15.3. US State regulations

VINYL BROMIDE (D3, 98%) + HYDROQUINONE(4666-78-8)	
U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	RTK - U.S. - Massachusetts - Right To Know List RTK - U.S. - Pennsylvania - RTK (Right to Know) List RTK - U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

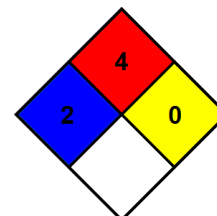
Full text of R-, H- and EUH-phrases:

Carc. 1A	Carcinogenicity Category 1A
Flam. Gas 1	Flammable gases Category 1
Press. Gas (Comp.)	Gases under pressure Compressed gas
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H350	May cause cancer
R12	Extremely flammable
R5	Heating may cause an explosion
F+	Extremely flammable

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 4 Severe Hazard

Physical : 3 Serious Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product