

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Vinylmagnesium Bromide Solution

Product Number: All applicable American Elements product codes, e.g. MG-OMX-01-SOL.1MTHF 01

CAS #: 1826-67-1

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
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Emergency telephone number:

+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids Category 1

Substances/mixtures which, in contact with water, emit flammable gases

Category 1

Skin Corrosion/irritation Category 1 B

Serious Eye Damage/Eye Irritation Category 1

Specific target organ toxicity (single exposure) Category 3

Target Organs - Respiratory system.

Label Elements

Signal Word

Danger

Hazard Statements

Extremely flammable liquid and vapor

In contact with water releases flammable gases which may ignite spontaneously

Causes severe skin burns and eye damage

May cause respiratory irritation



Precautionary Statements

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

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 away from any possible contact with water, because of violent reaction and possible flash fire

Handle under inert gas. Protect from moisture

Keep cool

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

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

Store in a dry place. Store in a closed container

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Reacts violently with water

May form explosive peroxides

Unknown Acute Toxicity

10 % of the mixture consists of ingredients of unknown toxicity.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component CAS-No Weight %

Tetrahydrofuran 109-99-9 90

Magnesium, bromoethenyl- 1826-67-1 10

SECTION 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 plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects Breathing difficulties. Causes burns by all exposure routes.

Inhalation of high vapor

concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is

contraindicated. Possible perforation of stomach or esophagus should be investigated:

Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

SECTION 5. FIREFIGHTING MEASURES

Suitable Extinguishing Media Dry chemical. approved class D extinguishers. clay. sodium carbonate.

Unsuitable Extinguishing Media No data available

Flash Point -17 °C / 1.4 °F

Method - No data available

Autoignition Temperature No data available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No data available

Sensitivity to Static Discharge No data available

Specific Hazards Arising from the Chemical

Flammable. Contact with water liberates toxic gas. Water reactive. Produce flammable gases on contact with water.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) Fumes Magnesium oxides

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

Health 3

Flammability 4

Instability 0

Physical hazard W

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up

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. Do not expose spill to water.

SECTION 7. HANDLING AND STORAGE

Handling Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation. Use explosion-proof equipment. Use only non-sparking tools. Do not allow contact with water because of violent reaction. 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. If peroxide formation is suspected, do not open or move container.

Storage Keep in a dry place. Keep container tightly closed. Keep away from heat and sources of ignition. Keep away from direct sunlight. Store at room temperature. Never allow product to get in contact with water during storage. Corrosives area. Flammables area. Keep under nitrogen. Keep container tightly closed in a dry and well-ventilated place. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component ACGIH TLV OSHA PEL NIOSH IDLH

Tetrahydrofuran TWA: 50 ppm

STEL: 100 ppm

Skin

(Vacated) TWA: 200 ppm

(Vacated) TWA: 590 mg/m³

(Vacated) STEL: 250 ppm

(Vacated) STEL: 735 mg/m³

TWA: 200 ppm

TWA: 590 mg/m³

IDLH: 2000 ppm

TWA: 200 ppm

TWA: 590 mg/m³

STEL: 250 ppm

STEL: 735 mg/m³

Component Quebec Mexico OEL (TWA) Ontario TWAEV

Tetrahydrofuran TWA: 100 ppm

TWA: 300 mg/m³

TWA: 200 ppm

TWA: 590 mg/m³

STEL: 250 ppm

STEL: 735 mg/m³

TWA: 50 ppm

STEL: 100 ppm

Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations

and safety showers are close to the workstation location.

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

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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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid

Appearance Amber

Odor pungent

Odor Threshold No data available

pH No data available

Melting Point/Range No data available

Boiling Point/Range No data available

Flash Point -17 °C / 1.4 °F

Evaporation Rate No data available

Flammability (solid,gas) No data available

Flammability or explosive limits

Upper No data available

Lower No data available

Vapor Pressure No data available

Vapor Density No data available

Relative Density 0.980

Solubility No data available

Partition coefficient; n-octanol/water No data available

Autoignition Temperature No data available

Decomposition Temperature No data available

Viscosity No data available

Molecular Formula C₂ H₃ Br Mg

Molecular Weight 131.25

SECTION 10. STABILITY AND REACTIVITY

Reactive Hazard Yes

Stability May form explosive peroxides. Moisture sensitive. Air sensitive. Light sensitive. Reacts violently with water, liberating highly flammable gases.

Conditions to Avoid Excess heat. Exposure to air. Exposure to light. Incompatible products. Exposure to moist

air or water.

Incompatible Materials Acids, Bases, Water, Alcohols

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Fumes, Magnesium oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Reacts violently with water, liberating highly flammable gases.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information No acute toxicity information is available for this product

Oral LD₅₀ Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD₅₀ Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC₅₀ Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component LD₅₀ Oral LD₅₀ Dermal LC₅₀ Inhalation

Tetrahydrofuran 1650 mg/kg (Rat) > 2000 mg/kg (Rabbit) 180 mg/L (Rat) 1 h

53.9 mg/L (Rat) 4 h

Toxicologically Synergistic

Products

No data available

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

Irritation Causes severe irritation and or burns

Sensitization No data available

Carcinogenicity Possible cancer hazard. May cause cancer based on animal data.

Component CAS-No IARC NTP ACGIH OSHA Mexico

Tetrahydrofuran 109-99-9 Not listed Not listed A3 Not listed Not listed

Magnesium,

bromoethenyl-

1826-67-1 Not listed Not listed Not listed Not listed Page 5 / 9

Mutagenic Effects No data available

Reproductive Effects No data available.

Developmental Effects No data available.

Teratogenicity No data available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No data available

Symptoms / effects, both acute and

delayed

Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information

Component EU - Endocrine Disruptors

Candidate List

EU - Endocrine Disruptors -

Evaluated Substances

Japan - Endocrine Disruptor

Information

Tetrahydrofuran Group III Chemical N/A N/A

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry

in RTECS for
complete information

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Component Freshwater Algae Freshwater Fish Microtox Water Flea
Tetrahydrofuran Not listed 2160 mg/l LC50 = 96 h

Pimephales promelas

Leuciscus idus: LC50: 2820
mg/L/48h

Not listed EC50 48 h 3485 mg/l

EC50: >10000 mg/L/24h

Persistence and Degradability No data available

Bioaccumulation/ Accumulation No data available.

Mobility .

Component log Pow

Tetrahydrofuran 0.45

SECTION 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.

Component RCRA - U Series Wastes RCRA - P Series Wastes

Tetrahydrofuran - 109-99-9 U213 -

SECTION 14. TRANSPORT INFORMATION

DOT

UN-No UN3399

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE

Hazard Class 4.3

Subsidiary Hazard Class 3, 8

Packing Group I

TDG

UN-No UN3399

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE

Hazard Class 4.3

Subsidiary Hazard Class 3, 8

Packing Group I

IATA

UN-No UN3399

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE

Hazard Class 4.3

Subsidiary Hazard Class 3
Packing Group I
IMDG/IMO
UN-No UN3399
Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE
Hazard Class 4.3
Subsidiary Hazard Class 3
Packing Group

SECTION 15. REGULATORY INFORMATION

International Inventories

Component TSCA DSL NDSL EINECS ELINCS NLP PICCS ENCS AICS IECSC KECL

Tetrahydrofuran X X - 203-726-8 - X X X X X

Magnesium, bromoethenyl- X - X 217-375-3 - - X - - X

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 a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base

Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - 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)

Component TSCA 12(b)

Tetrahydrofuran Section 4, 1 % de minimus concentration

SARA 313 N/A

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes

Chronic Health Hazard No

Fire Hazard Yes

Sudden Release of Pressure Hazard No

Reactive Hazard Yes

Clean Water Act

N/A

Clean Air Act

N/A

OSHA Occupational Safety and Health Administration

N/A

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance

under the Comprehensive
Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
Component Hazardous Substances RQs CERCLA EHS RQs
Tetrahydrofuran 1000 lb -
California Proposition 65 This product does not contain any Proposition 65 chemicals
State Right-to-Know
Component Massachusetts New Jersey Pennsylvania Illinois Rhode Island
Tetrahydrofuran X X X - X
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 data 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
B6 Reactive flammable material
E Corrosive material
F Dangerously reactive material

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.