SECTION 1. IDENTIFICATION

Product Name: Magnesium bis(diisopropyl)amide

Product Number: All applicable American Elements product codes, e.g. MG-I2PLAM-01-SOL 01

CAS #: 23293-23-4

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
Fax: +1 310-208-0351

Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
GHS02 Flame
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
Water-react. 1 H260 In contact with water releases flammable gases, which may ignite spontaneously.
GHS06 Skull and crossbones
Acute Tox. 3 H301 Toxic if swallowed.
GHS08 Health hazard
Muta. 2 H341 Suspected of causing genetic defects.
GHS05 Corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
GHS label elements
The substance is classified and labeled according to the Globally Harmonized System (GHS).
Hazard Pictograms

Signal word
Danger
Hazard statement(s)
H225 Highly flammable liquid and Vapor.
H261 In contact with water releases flammable gases.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
H351 Suspected of causing cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P231 + P232 Handle under inert gas. Protect from moisture.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ Vapors/ spray.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P401 + P404 Store in a dry place. Store in a closed container.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS
Reacts violently with water., May form explosive peroxides.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures
Synonyms: Magnesium diisopropylamide
Formula: C12H28MgN2
Molecular weight: 224.67 g/mol

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrahydrofuran</td>
<td>Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H302, H319, H335, H351</td>
<td>&gt;=70-&lt;90%</td>
</tr>
<tr>
<td>N-(1-Methylethyl)-2-propanamine magnesium salt</td>
<td>Water-react. 2; Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; H261, H302 + H332, H314</td>
<td>&gt;=20-&lt;30%</td>
</tr>
<tr>
<td>2-Methyl-2-butene</td>
<td>Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Muta. 2; Carc. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H225, H302, H304, H315, H336, H341, H351, H411</td>
<td>&gt;=1-&lt;5%</td>
</tr>
<tr>
<td>Undecane</td>
<td>Flam. Liq. 4; Asp. Tox. 1; H227, H304</td>
<td>&gt;=1-&lt;5%</td>
</tr>
<tr>
<td>Decane</td>
<td>Flam. Liq. 3; Asp. Tox. 1; H226, H304</td>
<td>&gt;=1-&lt;5%</td>
</tr>
<tr>
<td>Dodecane</td>
<td>Flam. Liq. 4; Asp. Tox. 1; H227, H304</td>
<td>&gt;=1-&lt;5%</td>
</tr>
<tr>
<td>Pentadecane</td>
<td>Asp. Tox. 1; H304</td>
<td>&gt;=1-&lt;5%</td>
</tr>
<tr>
<td>Tridecane</td>
<td>Asp. Tox. 1; H304</td>
<td>&gt;=1-&lt;5%</td>
</tr>
</tbody>
</table>
SECTION 4. FIRST AID MEASURES

Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Continue rinsing eyes during transport to hospital.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11
Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing media
Dry powder
Special hazards arising from the substance or mixture
No data available
Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
Further information
No data available

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation.
Remove all sources of ignition. Evacuate personnel to safe areas. Beware of Vapors accumulating to form explosive concentrations.
Vapors can accumulate in low areas.
For personal protection see section 8.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.
Reference to other sections
For disposal see section 13.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of Vapor or mist.
Use explosion-proof equipment.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Never allow product to get in contact with water during storage.

Recommended storage temperature
2 -8 °C
Handle and store under inert gas.

Air and moisture sensitive.

Test for peroxide formation periodically and before distillation.

Dry residue is explosive.

Store under inert gas.

Test for peroxide formation periodically and before distillation.

Specific end use(s)
Apart from the uses mentioned in section 1 no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Components with workplace control parameters
Component
CAS-No.
Value
Control parameters
Basis
Tetrahydrofuran
109-99-9
TWA
50.000000 ppm
USA. ACGIH Threshold Limit Values (TLV)
Remarks
Central Nervous System impairment
Upper Respiratory Tract irritation
Kidney damage
Confirmed animal carcinogen with unknown relevance to humans
Danger of cutaneous absorption
STEL
100.000000 ppm
USA. ACGIH Threshold Limit Values
(TLV)
Central Nervous System impairment
Upper Respiratory Tract irritation
Kidney damage
Confirmed animal carcinogen with unknown relevance to humans
Danger of cutaneous absorption
TWA
200.000000 ppm
590.000000 mg/m3
USA. NIOSH Recommended Exposure Limits
ST
250.000000 ppm
735.000000 mg/m3
USA. NIOSH Recommended Exposure Limits
TWA
200.000000 ppm
590.000000 mg/m3
USA. Occupational Exposure Limits
(OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m3 is approximate.
PEL
200 ppm
590 mg/m3
California permissible exposure limits for chemical contaminants
(Title 8, Article 107)
STEL
250 ppm
735 mg/m3
California permissible exposure limits for chemical contaminants
(Title 8, Article 107)
Hazardous components without workplace control parameters
Biological occupational exposure limits
Component
CAS-No.
Parameters
Value
Biological specimen
Basis
Tetrahydrofuran
109-99-9
Tetrahydrofuran
2.0000 mg/l
Urine
ACGIH - Biological Exposure Indices (BEI)
Remarks
End of shift (As soon as possible after exposure ceases)
Exposure controls
Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
Personal protective equipment
Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 10 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing.. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.
If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance
Form: liquid
Odor: No data available
Odor Threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: < -25 °C (< -13 °F)
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: 0.871 g/cm³
Water solubility: No data available
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Other safety information: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
Vapors may form explosive mixture with air. Reacts violently with water.
Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight. Exposure to moisture
Incompatible materials
No data available
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. -Carbon oxides, Nitrogen oxides (NOx), Magnesium oxide
Other decomposition products-No data available
In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available
Skin corrosion/irritation
No data available
Serious eye damage/eye irritation
No data available
Respiratory or skin sensitisation
No data available
Germ cell mutagenicity
No data available
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Stomach-Irregularities-Based on Human Evidence
Stomach-Irregularities-Based on Human Evidence (Tetrahydrofuran)
Stomach-Irregularities-Based on Human Evidence (Decane)

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects
Harmful to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contact a licensed professional wastedisposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
UN number: 3399
Class: 4.3 (3)
Packing group: II
Proper shipping name: Organometallic substance, liquid, water-reactive, flammable
(N-(1-Methylethyl)-2-propanamine magnesium salt, Tetrahydrofuran)

Reportable Quantity
(RQ): 1250 lbs
Poison Inhalation Hazard: No
IMDG
UN number: 3399
Class: 4.3 (3)
Packing group: II
EMS-No: F-G, S-N

Proper shipping name: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
(N-(1-Methylethyl)-2-propanamine magnesium salt, Tetrahydrofuran)

IATA
UN number: 3399
Class: 4.3 (3)
Packing group: II

Proper shipping name: Organometallic substance, liquid, water-reactive, flammable
(N-(1-Methylethyl)-2-propanamine magnesium salt, Tetrahydrofuran)

SECTION 15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Tetrahydrofuran
CAS-No. 109-99-9
Revision Date 1993-04-24
2-Methyl-2-butene
513-35-9
1993-04-24

Pennsylvania Right To Know Components
Tetrahydrofuran
CAS-No. 109-99-9
Revision Date 1993-04-24

N-(1-Methylethyl)-2-propanamine magnesium salt
23293-23-4
2-Methyl-2-butene
513-35-9
1993-04-24
Decane
124-18-5
2007-03-01

New Jersey Right To Know Components
Tetrahydrofuran
CAS-No. 109-99-9
Revision Date 1993-04-24
N-(1-Methylethyl)-2-propanamine magnesium salt 23293-23-4
2-Methyl-2-butene 513-35-9
1993-04-24
Undecane 1120-21-4
2007-03-01
Decane 124-18-5
2007-03-01
Dodecane 112-40-3
Pentadecane 629-62-9
Tridecane 629-50-5
Tetradecane 629-59-4
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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.