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

1.1. Product identifier

| Product form | Substance |
| CAS No       | 7439-95-4 |
| Formula      | Mg        |
| Synonyms     | Magnesium / magnesium, borings / magnesium, metal / magnesium, ribbons / magnesium, scalpings / magnesium, sheet / magnesium, turnings |
| BIG no       | 10761     |

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

Use of the substance/mixture: Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

GSC International, Inc.
1747 N. Deffer Drive
Nixa,
MO 65714
United States of America

Tel: 417-374-7431
Fax: 417-374-7442
Email: info@gscinternationalinc.com

1.4. Emergency telephone number

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization/Company</th>
<th>Address</th>
<th>Emergency number</th>
</tr>
</thead>
</table>
| MEXICO           | Servicio de Informacion Toxicologica Sintox    | Tintoreto #32 Edif. a Desp. Col. Nochebuena Mixcoac México, D.F. | 1 800 009 2800
                  |                                                 |                                              | +52 55 5611 2634 /+52 55 5598 9095 |
| UNITED STATES OF AMERICA | American Association of Poison Control Centers |                                              | 1-800-222-1222 |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Flam. Sol. 1  H228
Self-heat. 1  H251
Water-react. 2  H261

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US): GHS02

Signal word (GHS-US): Danger
Hazard statements (GHS-US): H228 - Flammable solid
H251 - Self-heating: may catch fire
H261 - In contact with water releases flammable gases

Precautionary statements (GHS-US): P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P223 - Do not allow contact with water
P231+P232 - Handle under inert gas. Protect from moisture
P235+P410 - Keep cool. Protect from sunlight
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P335+P334 - Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages
**SECTION 2: Other hazards**

No additional information available

**SECTION 3: Composition/information on ingredients**

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium (Main constituent)</td>
<td>(CAS No) 7439-95-4</td>
<td>&gt; 99.9</td>
<td>Flammable, Sol. 1, H228</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-heat. 1, H251</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Water-react. 2, H261</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

**SECTION 4: Description of first aid measures**

**First-aid measures general**: If you feel unwell, seek medical advice. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**First-aid measures after inhalation**: Remove person to fresh air and keep comfortable for breathing. Allow victim to breathe fresh air. Allow the victim to rest.

**First-aid measures after skin contact**: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Wash skin with plenty of water.

**First-aid measures after eye contact**: Rinse with water. Do not apply (chemical) neutralizing agents. Consult an ophthalmologist if irritation persists. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist. Rinse eyes with water as a precaution.

**First-aid measures after ingestion**: Rinse mouth out with water. Consult a doctor/medical service if you feel unwell. Get medical advice/attention. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.

**SECTION 5: Firefighting measures**

**Extinguishing media**

**Suitable extinguishing media**: Dry sand. Dry powder.


**Special hazards arising from the substance or mixture**

**Fire hazard**: DIRECT FIRE HAZARD. May readily catch fire. Combustibility increases as material becomes thinner. In finely divided state: increased fire hazard. Spontaneously flammable in air.

**Explosion hazard**: DIRECT EXPLOSION HAZARD. Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD. Dust cloud can be ignited by a spark. Reactions with explosion hazards: see "Reactivity Hazard". May form flammable/explosive vapor-air mixture.
Reactivity: Reacts slowly with water (moisture): release of highly flammable gases/vapours (hydrogen). This reaction is accelerated on exposure to (strong) acids. Burning substance reacts explosively with water. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: release of highly flammable gases/vapours (hydrogen). Flammable solid. Self-heating: may catch fire.

5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to heat: have neighborhood close doors and windows.

Firefighting instructions: When cooling/extinguishing: no water in the substance. If no hazard for/from the surroundings: controlled burning. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting: Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Protective equipment: Gloves. Protective clothing. See "Material-Handling" to select protective clothing.


6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up


Methods for cleaning up: Recover mechanically the product. Collect the spill only if it is in a dry state in closing drums. Consult "Material-handling" to select material of containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials. Notify authorities if product enters sewers or public waters.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Handle empty containers with care because residual vapors are flammable. Keep away from any possible contact with water, because of violent reaction and possible flash fire.
Precautions for safe handling: Ensure good ventilation of the work station. Meet the legal requirements. Wash contaminated clothing before reuse. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Use earthed equipment. Keep away from naked flames/heat. Avoid contact of substance with water. Finely divided: spark- and explosion proof appliances. Finely divided: keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tight closed. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Handle under inert gas. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Wear personal protective equipment. Protect from moisture. Keep away from any possible contact with water, because of violent reaction and possible flash fire.

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

<table>
<thead>
<tr>
<th>7.2. Conditions for safe storage, including any incompatibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Maintain air gap between stacks/pallets. Use explosion-proof Flame proof, lighting, electrical equipment and ventilation equipment.</td>
</tr>
<tr>
<td>Incompatible products: Strong bases. Strong acids.</td>
</tr>
<tr>
<td>Incompatible materials: Sources of ignition. Direct sunlight. Keep away from any possible contact with water, because of violent reaction and possible flash fire.</td>
</tr>
<tr>
<td>Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources.</td>
</tr>
<tr>
<td>Storage area: Store in a dry area. Keep container in a well-ventilated place. Store at ambient temperature. Fireproof storeroom. Provide the tank with earthing. Meet the legal requirements.</td>
</tr>
<tr>
<td>Special rules on packaging: SPECIAL REQUIREMENTS: closing, watertight, dry, clean, correctly labeled. meet the legal requirements. Secure fragile packaging in solid containers. Store in a closed container.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7.3. Specific end use(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional information available</td>
</tr>
</tbody>
</table>

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Magnesium Ribbon (7439-95-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Provide adequate general and local exhaust ventilation. Ensure good ventilation of the work station.


Materials for protective clothing: GIVE GOOD RESISTANCE: leather.

Hand protection: Gloves. Wear protective gloves.

Eye protection: Chemical goggles or safety glasses. Safety glasses.

Skin and body protection: Protective clothing.

Respiratory protection: Respiratory protection not required in normal conditions. Wear appropriate mask.

Environmental exposure controls: Avoid release to the environment.

Other information: Do not eat, drink or smoke during use.
## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Metal</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>24.31 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Silvery-white</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>650 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>1107 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>620 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 0.1 hPa</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.7</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1738 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>insoluble in water. Substance sinks in water. Soluble in mineral acids.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

VOC content: 0 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

React slowly with water (moisture): release of highly flammable gases/vapours (hydrogen). This reaction is accelerated on exposure to (strong) acids. Burning substance reacts explosively with water. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: release of highly flammable gases/vapours (hydrogen). Flammable solid. Self-heating: may catch fire.

### 10.2. Chemical stability

Unstable on exposure to moisture. Flammable solid. May form flammable/explosive vapor-air mixture. Self-heating: may catch fire.

### 10.3. Possibility of hazardous reactions

In contact with water releases flammable gases.

### 10.4. Conditions to avoid


### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
(Based on available data, the classification criteria are not met)

**Magnesium Ribbon (7439-95-4)**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 2000 mg/kg (Rat)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
(Based on available data, the classification criteria are not met)

Serious eye damage/irritation : Not classified
(Based on available data, the classification criteria are not met)

Respiratory or skin sensitization : Not classified
(Based on available data, the classification criteria are not met)

Germ cell mutagenicity : Not classified
(Based on available data, the classification criteria are not met)

Carcinogenicity : Not classified
(Based on available data, the classification criteria are not met)

Reproductive toxicity : Not classified
(Based on available data, the classification criteria are not met)

 Specific target organ toxicity (single exposure) : Not classified
(Based on available data, the classification criteria are not met)

 Specific target organ toxicity (repeated exposure) : Not classified
(Based on available data, the classification criteria are not met)

Aspiration hazard : Not classified
(Based on available data, the classification criteria are not met)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : AFTER INHALATION OF FUME: Metal fume fever.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Gastrointestinal complaints. Inflammation/damage of the eye tissue. Possible inflammation of the respiratory tract. Coughing.

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.


Ecology - water : No water pollutant (surface water). Not harmful to aquatic organisms.

12.2. Persistence and degradability

**Magnesium Ribbon (7439-95-4)**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: Not applicable. Not established.</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

**Magnesium Ribbon (7439-95-4)**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Not established.</td>
</tr>
</tbody>
</table>
12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on ozone layer : 

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Reuse or recycle following decontamination. Remove for physico-chemical/biological treatment. Remove to an authorized dump (Class I). Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to a licensed waste centre in accordance with local/regional/national/international regulations.

Additional information : LWCA (the Netherlands): KGA category 06. Can be considered as non hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT
Transport document description : UN1869 Magnesium, 4.1, III
UN-No.(DOT) : UN1869
Proper Shipping Name (DOT) : Magnesium
Department of Transportation (DOT) Hazard Classes : 4.1 - Class 4.1 - Flammable Solid 49 CFR 173.124
Hazard labels (DOT) : 4.1 - Flammable solid

Packing group (DOT) : III - Minor Danger
IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11H2Z1, 11H2Z2, 21H2Z1, 21H2Z2, 31H2Z1 and 31H2Z2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP3 - Flexible IBCs must be silt-proof and water-resistant or must be fitted with a silt-proof and water-resistant liner.
T1 - 1.5 178.274(d)(2) Normal............. 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 151
DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
DOT Packaging Bulk (49 CFR 173.xxx) : 240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 25 kg
### Magnesium Ribbon Safety Data Sheet

**DOT Quantity Limitations**

- Cargo aircraft only (49 CFR 175.75): 100 kg

**DOT Vessel Stowage Location**

- A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

**DOT Vessel Stowage Other**

- 39 - Stow “away from” liquid halogenated hydrocarbons.
- 52 - Stow “separated from” acids.
- 53 - Stow “separated from” alkaline compounds.
- 74 - Stow “separated from” oxidizers.
- 101 - Stow “separated from” iron oxide.

### Additional information

**Other information**

No supplementary information available.

### ADR

- **Transport document description**: UN 1869 MAGNESIUM, 4.1, III, (E)
- **Packing group (ADR)**: III
- **Class (ADR)**: 4.1 - Flammable solids, self-reactive substance and solid desensitized explosives
- **Hazard identification number (Kemler No.)**: 40
- **Classification code (ADR)**: F3
- **Hazard labels (ADR)**: 4.1 - Flammable solid

### Orange plates

- 40
- 1869

**Tunnel restriction code (ADR)**: E

**LQ**: 5kg

**Excepted quantities (ADR)**: E1

### Transport by sea

- **UN-No. (IMDG)**: 1869
- **Proper Shipping Name (IMDG)**: MAGNESIUM
- **Class (IMDG)**: 4.1 - Flammable solids, self-reactive substance and solid desensitized explosives
- **Packing group (IMDG)**: III - substances presenting low danger

### Air transport

- **UN-No. (IATA)**: 1869
- **Proper Shipping Name (IATA)**: Magnesium
- **Class (IATA)**: 4.1 - Flammable solids
- **Packing group (IATA)**: III - Minor Danger

### SECTION 15: Regulatory information

#### 15.1: US Federal regulations

**Magnesium Ribbon (7439-95-4)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2: International regulations

**CANADA**

No additional information available

**EU-Regulations**

No additional information available

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

- Flam. Sol. 1: H228
- Water-react. 2: H261
Magnesium Ribbon
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Self-heat. 1 H251
Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
F; R11
F; R15
Full text of R-phrases: see section 16

15.2.2. National regulations

15.3. US State regulations
No additional information available

SECTION 16: Other information

Revision date: 12/15/2014

Other information: None.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>Flamm. Sol. 1</th>
<th>Self-heat. 1</th>
<th>Water-react. 2</th>
<th>H228</th>
<th>H251</th>
<th>H261</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable solids Category 1</td>
<td>Self-heating substances and mixtures Category 1</td>
<td>Substances and mixtures which in contact with water emit flammable gases Category 2</td>
<td>Flammable solid</td>
<td>Self-heating: may catch fire</td>
<td>In contact with water releases flammable gases</td>
</tr>
</tbody>
</table>

NFPA health hazard: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard: 1 - Must be preheated before ignition can occur.

NFPA reactivity: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

NFPA specific hazard: W - Unusual reactivity with water. This indicates a potential hazard using water to fight a fire involving this material. When a compound is both water-reactive and an oxidizer, the W/bar symbol should go in this quadrant and the OX warning is placed immediately below the NFPA diamond.

HMIS III Rating
Health: 0 Minimal Hazard - No significant risk to health
Flammability: 1 Slight Hazard
Physical: 1 Slight Hazard
Personal Protection: C

SDS US (GHS HazCom 2012)

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.