SAFETY DATA SHEET

1. Identification

Product identifier: MAGNESIUM METAL, TURNINGS AND RIBBON

Other means of identification
Product No.: 2418, 26795

Recommended use and restriction on use
Recommended use: Not available.
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034
Telephone: Customer Service: 855-282-6867
Fax: Contact Person: Environmental Health & Safety
e-mail: info@avantormaterials.com

Emergency telephone number:
24 Hour Emergency: 908-859-2151
Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard classification

Physical hazards
Self-heating substances and mixtures Category 1
Substances and mixtures, which in contact with water, emit flammable gases Category 1

Label elements

Hazard symbol:

Signal word: Danger

Hazard statement: In contact with water releases flammable gas. Self-heating; may catch fire.

Precautionary statement

Prevention: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not allow contact with air. Wear protective gloves/protective clothing/eye protection/face protection. Keep cool. Protect from sunlight.
Response: Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

Storage: Protect from sunlight. Maintain air gap between stacks/pallets. Store away from other materials.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Substances

<table>
<thead>
<tr>
<th>Chemical identity</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>Content in percent (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAGNESIUM METAL</td>
<td></td>
<td>7439-95-4</td>
<td>99 - 100%</td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Rinse mouth. Get medical attention if symptoms occur.

Inhalation: Move to fresh air. Get medical attention if symptoms persist.

Skin contact: Wash skin thoroughly with soap and water for several minutes. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.

Most important symptoms/effects, acute and delayed

Symptoms: May cause skin and eye irritation.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General fire hazards: In case of fire and/or explosion do not breathe fumes. Dust may form explosive mixture with air.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Dry chemical.

Unsuitable extinguishing media: Water, CO2 or Foam
Specific hazards arising from the chemical: 
Material may react violently with water. Contact with water liberates flammable gas. Self-heating; may catch fire.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: 
Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters: 
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: 
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the MSDS for Personal Protective Equipment.

Methods and material for containment and cleaning up: 
Eliminate all ignition sources if safe to do so. Avoid water on spilled material or leaking containers. Pick up with vacuum or absorbent solid, store in closed container for disposal. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: 
Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions: 
Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: 
DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities: 
Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits
None of the components have assigned exposure limits.

Appropriate engineering controls
No data available.
Individual protection measures, such as personal protective equipment

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

**Skin protection**
**Hand protection:** Chemical resistant gloves
**Other:** Wear suitable protective clothing.

**Respiratory protection:** In case of inadequate ventilation use suitable respirator.

**Hygiene measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

### 9. Physical and chemical properties

#### Appearance

**Physical state:** Solid
**Form:** Solid
**Color:** Silver
**Odor:** Odorless
**Odor threshold:** No data available.
**pH:** No data available.
**Melting point/freezing point:** 651 °C
**Initial boiling point and boiling range:** 1,100 °C
**Flash Point:** 500 °C
**Evaporation rate:** No data available.
**Flammability (solid, gas):** No data available.
**Upper/lower limit on flammability or explosive limits**
- **Flammability limit - upper (%):** No data available.
- **Flammability limit - lower (%):** No data available.
- **Explosive limit - upper (%):** No data available.
- **Explosive limit - lower (%):** No data available.
**Vapor pressure:** 0.13 kPa (621 °C)
**Vapor density:** No data available.
**Relative density:** 1.74 (20 °C)
**Solubility(ies)**
- **Solubility in water:** Insoluble in water
- **Solubility (other):** No data available.
**Partition coefficient (n-octanol/water):** No data available.
**Auto-ignition temperature:** 473 °C
**Decomposition temperature:** No data available.
**Viscosity:** No data available.

**Other information**
**Molecular weight:** 24.31 g/mol (Mg)
10. Stability and reactivity

Reactivity: Reacts violently with water, liberating extremely flammable gases. Contact with acid liberates flammable material.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Conditions to avoid: Moisture. Heat, sparks, flames. Contact with incompatible materials.


Hazardous decomposition products: By heating and fire, toxic vapors/gases may be formed. Contact with water liberates flammable gas.

11. Toxicological information

Information on likely routes of exposure
Ingestion: May cause irritation of the gastrointestinal tract.

Inhalation: May cause irritation to the respiratory system.

Skin contact: May cause irritation.

Eye contact: May cause temporary eye irritation.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)
Oral Product: No data available.

Dermal Product: No data available.

Inhalation Product: No data available.

Repeated dose toxicity Product: No data available.

Skin corrosion/irritation Product: May cause skin irritation.

Serious eye damage/eye irritation Product: May irritate eyes.

Respiratory or skin sensitization Product: Not a skin sensitizer.

Carcinogenicity Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens: No carcinogenic components identified
No carcinogenic components identified

Germ cell mutagenicity
In vitro
Product: No mutagenic components identified
In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific target organ toxicity - single exposure
Product: No data available.

Specific target organ toxicity - repeated exposure
Product: No data available.

Aspiration hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:
Fish
Product: No data available.

Aquatic invertebrates
Product: No data available.

Specified substance(s):
MAGNESIUM METAL
LC 50 (Scud (Gammarus lacustris), 96 h): 64.7 mg/l Mortality

Chronic hazards to the aquatic environment:
Fish
Product: No data available.

Aquatic invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and degradability
Biodegradation
Product: There are no data on the degradability of this product.

BOD/COD ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration factor (BCF)
Product: No data available on bioaccumulation.
Partition coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments
MAGNESIUM METAL No data available.

Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
UN number: UN 1869
UN proper shipping name: Magnesium
Transport hazard class(es): 4.1
Class(es): 4.1
Label(s): 4.1
Packing group: III
Marine Pollutant: No

IMDG
UN number: UN 1869
UN proper shipping name: MAGNESIUM
Transport hazard class(es): 4.1
Class(es): 4.1
Label(s): 4.1
EmS No.: F-G, S-G
Packing group: III
Marine Pollutant: No

IATA
UN number: UN 1869
Proper Shipping Name: Magnesium
Transport hazard class(es): 4.1
Class(es): 4.1
Label(s): 4.1
Marine Pollutant: No
Packing group: III

15. Regulatory information

US federal regulations
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
SDS_US - SDS000001225
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
None present or none present in regulated quantities.

Superfund amendments and reauthorization act of 1986 (SARA)

Hazard categories
- [ ] Acute (Immediate)
- [ ] Chronic (Delayed)
- [x] Fire
- [x] Reactive
- [ ] Pressure Generating

SARA 302 Extremely hazardous substance
None present or none present in regulated quantities.

SARA 304 Emergency release notification
None present or none present in regulated quantities.

SARA 311/312 Hazardous chemical

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Threshold Planning Quantity</th>
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</table>

SARA 313 (TRI reporting)
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

US state regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act
MAGNESIUM METAL Listed

US. Massachusetts RTK - Substance List
MAGNESIUM METAL Listed

US. Pennsylvania RTK - Hazardous Substances
MAGNESIUM METAL Listed

US. Rhode Island RTK
No ingredient regulated by RI Right-to-Know Law present.
Inventory Status:

- Australia AICS: On or in compliance with the inventory
- Canada DSL Inventory List: On or in compliance with the inventory
- EINECS, ELINCS or NLP: On or in compliance with the inventory
- Japan (ENCS) List: Not in compliance with the inventory
- China Inv. Existing Chemical Substances: Not in compliance with the inventory
- Korea Existing Chemicals Inv. (KECI): On or in compliance with the inventory
- Canada NDSL Inventory: On or in compliance with the inventory
- Philippines PICCS: On or in compliance with the inventory
- US TSCA Inventory: On or in compliance with the inventory
- New Zealand Inventory of Chemicals: On or in compliance with the inventory
- Japan ISHL Listing: Not in compliance with the inventory.
- Japan Pharmacopoeia Listing: Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

NFPA Hazard ID

Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Water reactive

Issue date: 09-04-2014
Revision date: No data available.
Version #: 1.0
Further information: No data available.
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