



## Material Safety Data Sheet

| 1. Product Identification  |           |   |  |                           |              |
|--|-----------|---|--|---------------------------|--------------|
| Product name:  |           | <b>Magnesium Alloy Ingot (Hardener)</b> |  |                           |              |
| Manufacturer name:   |           |   | Distributor name:  |                           |              |
| Magnesium Refining Technologies, Inc.<br>County Road 177<br>Bellevue, Ohio 44811<br>Phone – (419) 483-9199 / Fax – (419) 483-8411<br>URL: www.magretechinc.com                               |           |   | Magnesium Refining Technologies, Inc.<br>County Road 177<br>Bellevue, Ohio 44811<br>Phone – (419) 483-9199 / Fax – (419) 483-8411<br>URL: www.magretechinc.com |                           |              |
| 2. Composition / Information on Ingredients  |           |   |  |                           |              |
| Chemical Component   | CAS #     | Weight %                                | TWA (mg/m <sup>3</sup> )   | STEL (mg/m <sup>3</sup> ) | Remarks      |
| Aluminum   | 7429-90-5 | 3-12%*                                  | 10   | ---                       | *approximate |
| Zinc   | 7440-66-6 | 2.0%*                                   | 2  | ---                       | *approximate |
| Manganese  | 7439-96-5 | 0.5%*                                   | 1  | ---                       | *approximate |
| Magnesium  | 7439-95-4 | Balance                                 | 10   | ---                       |              |
| 3. Hazards Identification  |           |   |  |                           |              |
| <b>Human:</b><br>Eye: Mechanical Injury. / Skin: n/a / Ingestion: n/a / Inhalation: dust may cause irritation.   |           |   |  |                           |              |
| <b>Environment:</b><br>Ingot Form: n/a / Dust: general ventilation. / Machine Turnings: must be kept dry.  |           |   |  |                           |              |
| 4. First Aid Treatment   |           |   |  |                           |              |
| <b>General:</b><br>Can cause eye and skin irritation. / Inhalation of dust or fume may cause irritation.   |           |   |  |                           |              |
| <b>Inhalation (dust/fume):</b><br>Remove from exposure to fresh air immediately. If respiratory problems develop, get medical aid as soon as possible.                                       |           |   |  |                           |              |
| <b>Skin contact (dust):</b><br>Immediately wash skin with plenty of water for at least 20 minutes. Removed contaminated clothing and wash before reuse.                                      |           |   |  |                           |              |
| <b>Eye contact (dust/chips):</b><br>Immediately flush eyes with plenty of water for at least 20 minutes, lifting lids occasionally. An eyewash station should be available in the work area. |           |   |  |                           |              |
| 5. Fire Fighting Measures  |           |   |  |                           |              |
| <b>Extinguishing agent:</b><br>Use dry sand, Met-L-X powder, road salt or Flux M-130. <b>DO NOT USE WATER</b> because this will generate flammable hydrogen gas and heat.                    |           |   |  |                           |              |



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| <b>6. Accidental Release Measures</b>  |
| <b>Personal protection:</b><br><b>Ingot Form:</b> Standard PPE (glasses, gloves, steel toe shoe, hard hat as necessary). During smelting, high heat protection, aluminized gear, etc. must be used.  |
| <b>Environmental precaution:</b><br><b>Ingot Form:</b> No significant environmental concerns in this form. Keep dry to avoid oxidation of product. <b>Machine Turnings:</b> Magnesium reacts with acid to form hydrogen gas and irritating fume and heat. In the presence of water only, flammable hydrogen gas and heat will be generated.  |
| <b>Clean up procedure:</b><br>Always wear personal protection equipment. Recover dry product for recycling. In finely divided form reaction with water is exothermic and hydrogen gas will be produced, ammonia may also be produced. Spillage should be removed when dry and kept in a clean and dry container. Container should be watertight but if water or moisture is present, ventilate container and store outside, in order to avoid any hydrogen accumulation.   |
| <b>7. Handling and Storage</b>   |
| <b>Handling:</b><br>Minimize dust generation and accumulation. With dust or fines avoid contact with eyes, skin and clothing. Avoid inhalation and ingestion. Do not allow contact with water.   |
| <b>Storage:</b><br><b>Store in a dry and cool place. Keep away from water and incompatible substances.</b> If exposed to moisture ingot products may develop oxidation or other cosmetic damage. <b>Machine turnings or fines</b> may generate hydrogen and/or ammonia and heat when exposed to moisture.  |
| <b>8. Exposure Controls / Personal Protection</b>  |
| <b>Ventilation:</b><br>Use adequate locale or general ventilation. Do not use recirculating ventilation system.  |
| <b>Control parameters and method:</b><br>In the work place, magnesium or magnesium alloy products should be preheated to a minimum temperature of 300F (149C) to eliminate moisture prior to use in any melting operation. Water, in any form, if added to molten metal, will quickly generate steam and hydrogen and may cause an explosion. If operations involving this product, such as machining, produce fines, such as dust, powder, chips, or turnings proper measures should be taken to prevent dust clouds around these operations. These fines should be collected frequently and should be stored and disposed of in accordance with NFPA guidelines. |
| <b>Personal protection equipment:</b><br><b>Ingot Form:</b> Standard PPE (glasses, gloves, steel toe shoe, hard hat as necessary). Generation of excessive amounts of dust may require use of respiratory protection. <b>Melting operations:</b> Full-body covering flame retardant clothing, hardhat, face shield, side-shield safety glasses, flame retardant gloves, and steel-toed boots should be used.   |



| <b>9. Physical and Chemical Properties</b>  |   |
|---|---|
| <b>Appearance, color, odor:</b><br>Solid, silver. May turn grey over time with oxidation. None to mild ammonia odor.  |   |
| Boiling point:  | 1107 <sup>0</sup> C<br>(2025 <sup>0</sup> F)                                    |
| Melting point:  | 470 <sup>0</sup> -680 <sup>0</sup> C<br>(875 <sup>0</sup> -1256 <sup>0</sup> F) |
| Density:  | 1.77-1.82<br>(g/cm <sup>3</sup> )   |
| Solubility in Water:  | not applicable  |
| Vapor pressure:   | 0.13 at melting temp.<br>(approx.)  |
| Molecular Weight:   | 24.3  |
| Specific Gravity:   | 1.81 (approx.)  |
| Auto-ignition temperature:  | not available   |
| Lower flammable limit:  | not applicable  |
| Upper flammable limit:  | not applicable  |
| <b>Other data:</b><br>Stable in ingot form. Product is highly hygroscopic, very reactive with water or moisture <u>in finely divided state</u> . Hydrogen, ammonia and heat may be produced.  |   |
| <b>10. Stability and Reactivity</b>   |   |
| <b>General:</b><br><b>Ingot Form:</b> Stable. Will not react violently with moisture, but cosmetic changes, such as oxidation may occur. <b>Molten State:</b> Avoid contact with moisture. An explosion could occur. <b>Machine Turnings:</b> Product is highly hygroscopic, very reactive with water or moisture in finely divided state. Hydrogen, ammonia and heat may be produced. Stable when dry. |   |
| <b>Condition to avoid:</b><br>Incompatible materials, dust generation, contact with water and moisture.   |   |
| <b>Incompatibilities with other materials:</b><br>Water, acid and oxidizing agents.   |   |
| <b>11. Toxicology Information</b>   |   |
| No LD50/LC50 information found relating to normal routes of occupational exposure.<br>-----\Cancer Lists\-----<br>-----NTP Carcinogen-----  |   |
| Ingredient  | Known    Anticipated    IARC Category   |
| -----   | -----   |
| Magnesium Metal (7439-95-4)   | No            No            None  |
| <b>12. Ecological Information</b>   |   |
| <b>Ecological effect (general):</b><br><b>Ingot Form:</b> No significant ecological impact. <b>Machine Turnings:</b> In large quantities could produce ammonia in water, which would be harmful to marine life.   |   |



### 13. Disposal

**General:**

Dispose in accordance with federal, state and local laws and regulations.

**Safe disposal method:**

Avoid contact with water. Magnesium products can be reclaimed by magnesium recyclers.

### 14. Transport

**Ingot Form:** Magnesium Alloy. Non-Hazmat. Does not meet D.O.T. specified "50 percent magnesium in pellets turnings or ribbons." per 49CFR 172.101. Other forms may be hazmat.

### 15. Regulation

**TSCA:** CAS# 7439-95-4 is listed on the TSCA Inventory.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: **Not to have met any hazard categories in ingot form.**

In other forms, material should be evaluated for the following categories: Magnesium Metal CAS # 7439-95-4: acute, flammable, reactive.

### 16. Other Information

**NFPA Rating:**

Health: 0

Fire: 1

Reactivity: 1

Special Hazard: Use No Water -W-

**Guidance:**

This document is prepared to the pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Disclaimer:**

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