

## SAFETY DATA SHEET

### 1. SUBSTANCE AND SOURCE IDENTIFICATION

**Product Identifier**

**SRM Number:** 980  
**SRM Name:** Isotopic Standard for Magnesium  
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is intended for use as an isotopic reference material for magnesium. A unit of SRM 980 consists of 0.25 g of a commercial, high purity magnesium metal chips.

**Company Information**

National Institute of Standards and Technology  
Standard Reference Materials Program  
100 Bureau Drive, Stop 2300  
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200  
FAX: 301-948-3730  
E-mail: SRMMSDS@nist.gov  
Website: <http://www.nist.gov/srm>

Emergency Telephone ChemTrec:  
1-800-424-9300 (North America)  
+1-703-527-3887 (International)

### 2. HAZARDS IDENTIFICATION

**Classification**

**Physical Hazard:** Flammable Solids Category 2  
**Health Hazard:** Not classified.

**Label Elements****Symbol:**

**Signal Word:** WARNING

**Hazard Statement(s):**

H228 Flammable solid.

**Precautionary Statement(s):**

P210 Keep away from heat, sparks, open flame, and hot surfaces – No smoking.  
P280 Wear protective gloves, protective clothing, and eye protection.

P370+P378 In case of fire: Use regular dry chemical, dry sand, lime, or soda ash to extinguish.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

---

### 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

---

**Substance:** Magnesium

**Other Designations:** Magnesium metal; magnesium pellets; magnesium ribbons

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Magnesium	7439-95-4	231-104-6	100

---

### 4. FIRST AID MEASURES

---

**Description of First Aid Measures:**

**Inhalation:** If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

**Skin Contact:** Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

**Eye Contact:** Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

**Ingestion:** If a large amount is swallowed, seek medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Irritation of skin, eyes, respiratory system.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek medical attention if needed.

---

### 5. FIRE FIGHTING MEASURES

---

**Fire and Explosion Hazards:** Serious fire hazard. . See Section 9, "Physical and Chemical Properties" for flammability properties.

**Extinguishing Media:**

Suitable: Regular dry chemical, dry sand, lime, and soda ash.

Unsuitable: Do not use water or foam.

**Specific Hazards Arising from the Chemical:** None listed.

**Special Protective Equipment and Precautions for Fire-Fighters:** Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1

Fire = 3

Reactivity = 0

---

### 6. ACCIDENTAL RELEASE MEASURES

---

**Personal Precautions, Protective Equipment and Emergency Procedures:** Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

**Methods and Materials for Containment and Clean up:** Notify safety personnel of spills. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry.

---

### 7. HANDLING AND STORAGE

---

**Safe Handling Precautions:** See Section 8, "Exposure Controls and Personal Protection".

**Storage:** Store and handling in accordance with all current regulations and standards. Store outside or in a detached building. Store in a cool, dry place. Keep separated from incompatible substances.

---

### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

---

**Exposure Limits:** No occupational exposure limits established.

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye/Face Protection:** Wear chemical resistant safety goggles. An eyewash station should be readily available near areas of use.

**Skin and Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

Descriptive Properties	Magnesium
<b>Appearance</b> (physical state, color, etc.):	white chips
<b>Molecular Formula:</b>	Mg
<b>Molar Mass (g/mol):</b>	24.3
<b>Odor:</b>	odorless
<b>Odor threshold:</b>	not available
<b>pH:</b>	not available
<b>Evaporation rate:</b>	not available
<b>Melting point/freezing point:</b>	649 °C (1200 °F)
<b>Relative Density as specific gravity</b> (water=1):	1.7 at 5 °C
<b>Vapor Pressure:</b>	1 mmHg at 621 °C
<b>Vapor Density (air = 1):</b>	not available
<b>Viscosity (cP):</b>	not available
<b>Solubility(ies):</b>	reacts with water; soluble in mineral acids, concentrated hydrofluoric acid; insoluble in alkali solutions
<b>Partition coefficient (n-octanol/water):</b>	not available
<b>Particle Size:</b>	not available
<b>Thermal Stability Properties</b>	
<b>Autoignition Temperature (°C):</b>	482 °C (900 °F) [dust]
<b>Thermal Decomposition (°C):</b>	not available
<b>Initial boiling point and boiling range (°C):</b>	1107 °C (2025 °F)
<b>Explosive Limits, LEL (Volume %):</b>	not available
<b>Explosive Limits, UEL (Volume %):</b>	not available
<b>Flash Point (°C):</b>	not available
<b>Flammability (solid, gas):</b>	flammable

---

## 10. STABILITY AND REACTIVITY

---

**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**   X   Stable        Unstable

**Possible Hazardous Reactions:** No data available.

**Conditions to Avoid:** Avoid contact with combustible or incompatible materials. Avoid contact with water or moist air may form flammable or toxic gases and/or vapors. Avoid generating dust and heat sources that may cause ignition.

**Incompatible Materials:** Combustible materials, acids, metals, oxidizing materials, metal salts, halo carbons, cyanides, halogens, peroxides, metal oxides.

**Fire/Explosion Information:** See Section 5, "Fire Fighting Measures".

**Hazardous Decomposition:** Miscellaneous decomposition products.

**Hazardous Polymerization:** \_\_\_\_\_ Will Occur     X  Will Not Occur

---

## 11. TOXICOLOGICAL INFORMATION

---

**Route of Exposure:**     X  Inhalation     X  Skin    \_\_\_\_\_ Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Irritation of skin, eyes, and respiratory system.

**Potential Health Effects (Acute, Chronic and Delayed):**

**Inhalation:** Inhalation of magnesium fumes may result in irritation of the mucous membranes of the respiratory tract that may progress into flu like symptoms associated with metal fume fever.

**Skin Contact:** Magnesium can cause skin irritation. Absorption through damaged skin caused by cuts or scratches may produce a severe local lesion frequently with necrosis. These lesions are very slow to heal.

**Eye Contact:** Irritation may occur.

**Ingestion:** If a large dose is ingested, magnesium can cause gastrointestinal irritation with nausea, abdominal pain, and diarrhea. Nausea and vomiting are common with oral exposure.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Not classified.

Mild to moderate toxicity if ingested but severe if administered intravenously.

Dog, Oral LDLo: 230 mg/kg to 280 mg/kg

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye Damage/Eye Irritation:** Not classified; no data available.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Not classified.

**Listed as a Carcinogen/Potential Carcinogen**    \_\_\_\_\_ Yes     X  No

Magnesium is not listed by IARC, NTP, or OSHA as a carcinogen/potential carcinogen.

**Reproductive Toxicity:** Not classified; no data available.

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, Repeated Exposure:** Not classified; no data available.

**Aspiration Hazard:** Not applicable.

---

## 12. ECOLOGICAL INFORMATION

---

**Ecotoxicity Data:** No data available.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

---

## 13. DISPOSAL CONSIDERATIONS

---

**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations. Subject to Hazardous Waste Number(s): D001.

---

## 14. TRANSPORTATION INFORMATION

---

**U.S. DOT and IATA:** UN1869, Magnesium, Hazard Class 4.1, Packing Group III, Yes, E1.

---

## 15. REGULATORY INFORMATION

---

### U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	No.
CHRONIC HEALTH:	No.
FIRE:	Yes.
REACTIVE:	No.
PRESSURE:	No.

### State Regulations:

California Proposition 65: Not listed.

**U.S. TSCA Inventory:** Magnesium is listed.

**TSCA 12(b), Export Notification:** Not listed.

### Canadian Regulations:

WHMIS Information: Not provided for this material.

---

## 16. OTHER INFORMATION

---

**Issue Date:** 06 November 2014

**Sources:** ChemAdvisor, Inc., *SDS Magnesium*, 10 September 2014.

Hazardous Substances Data Bank (HSDB), National Library of Medicine's TOXNET system, *Magnesium Compounds*; available at <http://toxnet.nlm.nih.gov> (accessed Nov 2014).

### Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
n.o.s.	Not Otherwise Specified	WHMIS	Workplace Hazardous Materials Information System

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail [srmmsds@nist.gov](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.