

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards



SDS Revision: 1.1

SDS Revision Date: 7/25/2015

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	MAGNESIUM FIRE STARTER
1.2	Chemical Name:	Magnesium-Iron-Rare Earth Metal Alloy
1.3	Synonyms:	P/N 66560
1.4	Trade Names:	Harbor Freight Tools
1.5	Product Uses & Restrictions:	Fire Starter
1.6	Distributor's Name:	Harbor Freight Tools USA, Inc.
1.7	Distributor's Address:	26541 Agoura Road, Calabasas, CA 91302 USA
1.8	Emergency Phone:	CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 676687)
1.9	Business Phone / Fax:	+1 (805) 388-1000

2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	<p>This product is classified as a HAZARDOUS SUBSTANCE but not as DANGEROUS GOODS according to the classification criteria of NOHSC: 1088 (1999) and ADG Code (Australia). Risk of burning off for fine material or explosions after raising the dust.</p> <p>DANGER! FLAMMABLE SOLID. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION. MAY BE HARMFUL IF INHALED.</p> <p><u>Classification:</u> Flam. Sol. 1; Skin Sens. 1B; Eye Irrit. 2; Acute Tox. Inh. 5</p> <p><u>Hazard Statements (H):</u> H228 – Flammable solid. H317 – May cause an allergic skin reaction. H319 – Causes serious eye irritation. H333 – May be harmful if inhaled.</p> <p><u>Precautionary Statements (P):</u> P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 – Avoid breathing dust. P264 – Wash thoroughly after handling. P280 – Wear protective gloves/eye protection/face protection. P304 + P312 – IF INHALED: Call a POISON CENTER/doctor if you feel unwell. P302+P352 – IF ON SKIN: Wash with soap and water. P333+P313 – If skin irritation occurs: Get medical advice/attention. P305+P351+P338 – IF IN EYES: Rinse immediately with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P370+P378 – In case of fire: Use Dry sand or salt (NaCl), class D dry-powder extinguisher. DO NOT USE water, CO₂-extinguisher and halogenated agents. P501 – Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF).</p>	 
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3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)									OTHER
					ACGIH		NOHSC			OSHA				
					ppm		ppm			ppm				
					TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH		
MAGNESIUM	7439-95-4	NA	231-104-6	60-100	NA	NA	NF	NF	NF	NA	NA	NA		
	Flam. Sol. 1; Water-react. 2; Self-heat. 1; H228, H261, H252													
CERIUM	7440-45-1	FK485000	231-154-9	5-15	NA	NA	NF	NF	NF	NA	NA	NA		
	Flam. Sol. 1; H228													
LANTHANUM	7439-91-0	NA	231-099-0	5-10	NA	NA	NF	NF	NF	NA	NA	NA		
IRON	7439-89-6	NO4565500	231-096-4	5-10	(5)	NA	NF	NF	NF	(10)	NA	NA	0.5 – NIOSH	
	Acute Tox. 4 *; Skin Corr. 1A; H302, H314													

4. FIRST AID MEASURES

4.1	First Aid:	<p><u>Ingestion:</u> Ingestion is unlikely; however, particulates from grinding or cutting may be ingested. DO NOT INDUCE VOMITING. Contact ChemTrec at +1 (703) 527-3887 or the nearest Poison Control Center or local emergency telephone number for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.</p> <p><u>Eyes:</u> Flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If irritation persists, seek immediate medical attention.</p> <p><u>Skin:</u> Remove contaminated clothing and wash affected areas with soap and water. If irritation persists, seek prompt medical attention. Do not wear contaminated clothing until after it has been properly cleaned.</p> <p><u>Inhalation:</u> Remove victim to fresh air at once. If breathing is difficult, administer supplemental oxygen and seek immediate medical attention. If breathing stops, perform artificial respiration.</p>
4.2	Effects of Exposure:	<p><u>Ingestion:</u> Ingestion is unlikely; no adverse effects under normal usage.</p> <p><u>Eyes:</u> May cause irritation due to abrasive action of the material.</p> <p><u>Skin:</u> May cause irritation due to abrasive action of the material.</p> <p><u>Inhalation:</u> Inhalation of powder or dust may cause irritation of respiratory tract. If symptoms of pulmonary distress remove involved person from exposure area immediately to fresh air and seek medical assistance.</p>

4. FIRST AID MEASURES – cont'd

4.3	Symptoms of Overexposure:	<u>Ingestion:</u> Intestinal discomfort, nausea, vomiting, and diarrhea. <u>Eyes:</u> Mild irritation, redness, and watering. <u>Skin:</u> Contact dermatitis, characterized by localized red or puffy dry skin and itching. <u>Inhalation:</u> Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, metal fume fever, difficulty in breathing, frequent coughing, or chest pain.			
4.4	Acute Health Effects:	<u>Ingestion:</u> Gastrointestinal irritation and central nervous system depression. <u>Eyes:</u> Mild to moderate irritant. <u>Skin:</u> Prolonged or repeated contact may cause contact dermatitis (localized redness or rash). <u>Inhalation:</u> Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, difficulty in breathing, frequent coughing, or chest pain.			
4.5	Chronic Health Effects:	May be harmful if inhaled.			
4.6	Target Organs:	Eyes, Skin, Respiratory System			
4.7	Medical Conditions Aggravated by Exposure:	Individuals with allergies or impaired respiratory function may have symptoms worsened by exposure.	HEALTH		2
			FLAMMABILITY		3
			PHYSICAL HAZARDS		0
			PROTECTIVE EQUIPMENT		B
			EYES	SKIN	LUNGS

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	Magnesium is a flammable solid that is water reactive. When heated in air to a temperature near its melting point. Magnesium alloys ignite and burn with a white flame. Use of water on burning magnesium will produce hydrogen gas and may cause an explosion.
5.2	Extinguishing Methods:	Dry sand or salt (NaCl), class D dry-powder extinguisher or Met-L-X extinguisher. DO NOT USE water, CO ₂ extinguisher and halogenated agents.
5.3	Firefighting Procedures:	Use Dry sand or salt (NaCl), class D dry-powder extinguisher to extinguish. All exposed surfaces cover with sand or metal extinguisher-powder. Material should not be mixed until the material has been allowed to cool. Firefighters should wear a MSHA/NIOSH approved or equivalent self-contained breathing apparatus (SCBA) and protective clothing. Fire should be fought from a safe distance. Keep containers cool until well after the fire is out. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway.

6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	<p>Before cleaning any spill, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment including gloves, glasses and NIOSH approved (or equivalent) dust respirator. Use only non-sparking tools. Remove all sources of ignition, avoid development of dust, pick up with shovels, and place in signed closeable containers. Avoid contact of material with water and acids. Rubbing product with metallic objects may cause sparking or fire. Wash all affected areas. Remove any contaminated clothing and wash thoroughly before reuse. Keep spills and cleaning runoffs out of drains, municipal sewers and open bodies of water.</p>
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid contact to eyes, skin, and mucous membranes. Avoid inhalation of dusts. Wash thoroughly after handling and use. Do not smoke, eat, drink, chew gum or tobacco, or apply cosmetics within the working area. Do not store or bring tobacco products, gum, food, drinks or cosmetics within the working area. Otherwise follow the standards of good industrial hygiene practices.
7.2	Storage & Handling:	Maintain air gap between stacks or pallets. Protect from moisture. Keep Cool. Ground and bond container and receiving equipment. Store in a dry place. Store in a closed container. . Keep product contained and retain all warning and identity labels. Preferred storage is a sheltered cool area with temperature and humidity control to prevent high humidity. Keep away from incompatible materials listed in Section 10.
7.3	Special Precautions:	Read and understand the manufacturer's instructions and the precautionary label on this product. Do not allow contact with water. Handle and store contents under inert gas. Protect from moisture. Store in a dry place. Store in a closed container. Protect containers from physical damage. Maintain air gap between stacks or pallets.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION




[illegible]

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8. EXPOSURE CONTROLS & PERSONAL PROTECTION – cont'd

8.3	Respiratory Protection:	Normally not necessary. In instances where dust of this product are generated, and respiratory protection is needed, use only protection authorized by 29 CFR §1910.134, applicable U.S. State regulations, or the Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces, EC member States, or Australia.	
8.4	Eye Protection:	Normally not necessary. Avoid eye contact. ANSI approved safety glasses with side shields should be used when handling or using this sealed electric storage battery. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).	
8.5	Hand Protection:	Normally not necessary. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, or the EU member states.	
8.6	Body Protection:	No apron required when handling. Eye wash stations and deluge showers should be available. If necessary, refer to appropriate standards of Canada, the EU member states, or U.S. OSHA.	

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Solid, metallic dark-grey article.
9.2	Odor:	Odorless
9.3	Odor Threshold:	NA
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	> 600 °C (1112 °F)
9.6	Initial Boiling Point/Boiling Range:	> 1000 °C (1832 °F)
9.7	Flashpoint:	NA
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	Magnesium ≈1.74; rare earth metal ≈6.5; Iron ≈7.87
9.12	Solubility:	Insoluble
9.13	Partition Coefficient (log P _{ow}):	NA
9.14	Autoignition Temperature:	Magnesium 473 °C (883.4 °F)
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	NA

10. STABILITY & REACTIVITY

10.1	Stability:	Lumpy material is stable against corrosion. Fine material may ignite during handling.
10.2	Hazardous Decomposition Products:	The material forms hydrogen when in contact with water or acids.
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Use or storage near incompatible substances. Moisture and water
10.5	Incompatible Substances:	Strong oxidizing agents, strong acids and bases. Moisture and water

11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: NO	Absorption: YES	Ingestion: YES
11.2	Toxicity Data:	This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product, but is not presented in this document.		
11.3	Acute Toxicity:	See Section 4.4		
11.4	Chronic Toxicity:	See Section 4.5		
11.5	Suspected Carcinogen:	NA		
11.6	Reproductive Toxicity:	This product is not reported to cause reproductive toxicity in humans.		
	Mutagenicity:	This product is not reported to produce mutagenic effects in humans.		
	Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.		
	Teratogenicity:	This product is not reported to cause teratogenic effects in humans.		
	Reproductive Toxicity:	This product is not reported to cause reproductive effects in humans.		
11.7	Irritancy of Product:	See 4.3		
11.8	Biological Exposure Indices:	NE		
11.9	Physician Recommendations:	Treat symptomatically.		

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	There are no specific data available for this product.
12.2	Effects on Plants & Animals:	There are no specific data available for this product.
12.3	Effects on Aquatic Life:	There are no specific data available for this product.

SAFETY DATA SHEET

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13. DISPOSAL CONSIDERATIONS



13.1	Waste Disposal:	Waste disposal must be in accordance with appropriate Federal, state, provincial and local regulations.
13.2	Special Considerations:	NA

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND):	NOT REGULATED
14.2	IATA (AIR):	NOT REGULATED
14.3	IMDG (OCN):	NOT REGULATED
14.4	TDGR (Canadian GND):	NOT REGULATED
14.5	ADR/RID (EU):	NOT REGULATED
14.6	SCT (MEXICO):	NOT REGULATED
14.7	ADGR (AUS):	NOT REGULATED

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, Section 313 reporting requirements.
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory or are otherwise exempt.
15.4	CERCLA Reportable Quantity (RQ):	NA
15.5	Other Federal Requirements:	NA
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDL. The following chemicals are listed on the Ingredient Disclosure List: Chromium, Manganese, and Molybdenum. WHMIS Classification: D2B (Other Toxic Effects). 
15.7	State Regulatory Information:	<u>Magnesium</u> is found on the following state criteria lists: Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Pennsylvania Right-to-Know List (PA) None other ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).
15.8	Other Requirements:	The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC: Harmful (Xn). <u>Risk Phrases</u> (R): 9-20-24/25 - Use only in well ventilated areas. Harmful by inhalation. Avoid contact with skin and eyes. <u>Safety Phrases</u> (S): 22-36/37/39-38-51 - Do not breathe fumes. Wear suitable protective clothing, gloves and eye/face protection. In case of insufficient ventilation wear suitable respiratory equipment. Use only in well-ventilated areas. 

16. OTHER INFORMATION

16.1	Other Information:	DANGER! FLAMMABLE SOLID. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION. MAY BE HARMFUL IF INHALED. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust. Wash thoroughly after handling. Wear protective gloves/eye protection/face protection. IF INHALED: Call a POISON CENTER/doctor if you feel unwell. IF ON SKIN: Wash with soap and water. If skin irritation occurs: Get medical advice/attention. IF IN EYES: Rinse immediately with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P370+P378 – In case of fire: Use Dry sand or salt (NaCl), class D dry-powder extinguisher. DO NOT USE water, CO ₂ -extinguisher and halogenated agents. Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF). KEEP LOCKED UP AND OUT OF REACH OF CHILDREN.	
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.	
16.3	Disclaimer:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Harbor Freight Tools USA, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for:	Harbor Freight Tools USA, Inc. 26541 Agoura Road Calabasas, CA 91302 USA Tel: +1 (805) 388-1000 http://www.harborfreight.com/	
16.5	Prepared by:	ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com	

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DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
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EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
C	Ceiling Limit
ES	Exposure Standard (Australia)
IDLH	Immediately Dangerous to Life and Health
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average

FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
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HMIS-III HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

HEALTH
FLAMMABILITY
PHYSICAL HAZARDS
PERSONAL PROTECTION

PERSONAL PROTECTION RATINGS:

A		G	
B		H	
C		I	
D		J	
E		K	
F		X	Consult your supervisor or SOPs for special handling directions.
<div> Safety Glasses Splash Goggles </div> <div> Face Shield & Protective Eyewear Gloves </div> <div> Boots Synthetic Apron </div> <div> Protective Clothing & Full Suit Dust Respirator </div> <div> Full Face Respirator Dust & Vapor Half-Mask Respirator </div> <div> Full Face Respirator Airline Hood/Mask or SCBA </div>			

OTHER STANDARD ABBREVIATIONS:

ML	Maximum Limit
mg/m3	milligrams per cubic meter
NA	Not Available
ND	Not Determined
NE	Not Established
NF	Not Found
NR	No Results
ppm	parts per million
SCBA	Self-Contained Breathing Apparatus

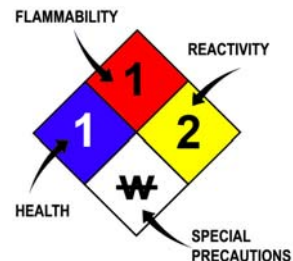
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W	Use No Water
OX	Oxidizer
TREFOIL	Radioactive



TOXICOLOGICAL INFORMATION:

LD₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD₀₁	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD₀₁, LD₀₁, & LD₀₁ or TC, TC₀₁, LC₀₁, & LC₀₁	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{OW} or log K_{OC}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NOHSC	National Occupational Health and Safety Commission (Australia)
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)
WGK	Wassergefährdungsklassen (German Water Hazard Class)
HMIS-III	National Paint & Coatings Association Hazardous Materials Identification System

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

EC (67/548/EEC) INFORMATION:

C	E	F	N	O	T	Xi	Xn
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

CLP/GHS (1272/2008/EC) PICTOGRAMS:

GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizer	Pressurized	Corrosive	Toxic	Harmful Irritant	Health Hazard	Environment