

Material Safety Data Sheet

Ration Supplement, Flameless Heater (FRH), For Meal, Ready-To-Eat NSN 8970-01-321-9153

Section I – MANUFACTURER'S INFORMATION

Manufacturer's Name: Luxfer Magtech Inc.
Address: 2940 Highland Ave, Unit 210 Cincinnati, Ohio 45212
Telephone Number: (513)772-3066
Emergency Contact: CHEMTREC (800) 424-9300
Date Prepared: November 27, 2013

Section II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Ingredients (all are non-toxic materials)	Weight
Magnesium -Iron alloy (as magnesium metal)	8g max per FRH
Sodium Chloride, Silica, Wetting Agent	

Section III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (F)	N/A	Specific gravity	N/A
Vapor Pressure	N/A	Melting Point (F)	1202(Mg)
Vapor Density	N/A	Evaporation Rate	N/A
Solubility in Water	N/A	Percent Volatile by Weight	N/A

Appearance and Odor: The heater consists of a grayish metallic powder packaged within a porous plastic pouch. The pouch is sealed within a high density polyethylene (HDPE) bag.

Section IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A Flammability Limits: N/A LEL: N/A UEL: N/A

Extinguishing Media:

Use class-D agents at any stage of the fire or other extinguishing agents specifically intended for Magnesium fires).

If detected before Mg starts to burn:

Use extinguishing agents intended for Type A, B, or C fires.

If Mg is burning (extremely intense fire with white sparks):

- (1) Flood the fire with large amounts of water with a fog nozzle (not a solid stream) or foam.
- (2) Move burning material outdoors if possible, allow to burn completely or spread material out to extinguish. Individual pads are self-extinguishing.

Special Fire Fighting Procedures:

Fire Fighters should use self Contained Breathing Apparatus due to hazardous off gassing from burning polyethylene.

Unusual Fire and Explosion Hazards:

If cases of FRHs are ignited, fiberboard and plastic will burn initially as a class A fire. Bulk packs will sustain initial fire due to fiberboard and plastic packing. Bulk packs will transition from initial class A fire to flammable solid fire (class D), if fire not brought under control in initial stages.

Section V - HEALTH HAZARD DATA

Acute Effects: (Requires exposure to FRH pad due to damaged or no packaging)

Causes eye irritation.

Causes skin irritation with prolonged contact.

Emergency First Aid Procedures:

In case of contact:

Eyes - Flush eyes with water for 15 minutes.

Broken skin - Wash skin with soap and water.

Carcinogenicity: Unknown

Signs and Symptoms of Exposure: Irritation of the eyes, nose or throat.

Dermatitis of the skin.

Medical Conditions Generally Aggravated by Exposure: Small cuts, abrasions

Other:

Manufacturer certifies that all FRH ingredients are non-toxic, and by-products of reacted FRHs are non-toxic and harmless. See Section VII for list of byproducts.

Individual FRHs are packaged with labels warning that "Heater and its By-Products are not intended for human consumption.

Section VI - REACTIVITY DATA

Stability: Water Activated

Incompatibilities: (Specifically Magnesium contained within FRH)

Acids, Acid Chlorides, Strong Oxidizing agents

Reacts Violently With: Halogens, Chlorinated Solvents, Ammonium Nitrate,

Carbonates, Arsenic, Cupric Oxide, Cupric Sulfate, Mercuric Oxide, Inorganic Phosphates

Hazardous Decomposition or By-products: If packing is penetrated, saturation of one FRH by water slowly produces trace amounts of hydrogen (Max 9 liters).

Hazardous Polymerization: Will not occur

Section VII – SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled:

Collect spilled FRHs and inspect polyethylene bags:

- If bag is punctured, torn, or interior material is wetted, discard as waste as described below.
- If bag is undamaged, repackage.

Waste Disposal Method

Used FRHs (i.e. heaters reacted with water), or unused FRHs, are approved for disposal as ordinary household waste.

Bulk Pack or multiple FRHs (not packed with MREs) must be managed as a RCRA hazardous waste when disposed or may be incinerated in a waste facility, ensuring that all material is burned thoroughly.

In all circumstances, FRHs must be disposed of in accordance with all applicable municipal, state and federal waste disposal regulations.

FRH byproducts (reacted with water):

Magnesium Hydroxide (Milk of Magnesia - common Antacid, FDA listed food additive)

Elemental Iron (food enrichment grade - FDA listed food additive)

Silicon Dioxide (FDA listed food additive)

Wetting agent (Trace amounts only - alcohol derivative, has been shown to cause diarrhea and hypoactivity)

Hydrogen

Section VIII – SPECIAL PROTECTION EQUIPMENT

Fire Fighters should use Self Contained Breathing Apparatus due to hazardous off-gassing from burning fiberboard and polyethylene.

Section IX – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage

Warehouses where large quantities of FRHs are stored should provide:

- Protection against physical damage, especially the puncturing of cases during operation of fork lifts.
- Protection against water including leaks, snow, rain or flooding.
- Wrapping of FRH pallets to prevent water damage.
- Covering for small quantities of FRHs (i.e. tarps, polyethylene, etc.)
- Storage in a general purpose warehouse or dry goods storage area.
- End Bays reserved for the storage of FRHs where possible. Stacks of FRHs should be arranged for access to the stack's interior and/or for removal to the outdoor for fire fighting.
- Equipment for fighting Class-D and Class-A fires where FRHs are present.
- Quick response fire detection and fire fighting capabilities.
- Segregation from strong oxidizers; flammable or munitions.

Other Precautions:

This MSDS shall be made readily available to the local Fire Department of Emergency Response Crew in case of an emergency.

Section X – TRANSPORTATION

The U. S. Department of Transportation has determined that a single Flameless Ration Heater (FRH) device, containing a maximum of eight grams of magnesium powder, packaged in a tough plastic bag within a Meal, Ready-to-Eat (MRE), is in a quantity and form which does not pose a hazard in transportation and is not subject to the Hazardous Materials Regulation (HMR), regardless of the number of MREs in a package. This determination does not apply to FRH devices shipped separately from MRE's, or FRH devices containing more than eight grams of magnesium powder, which must be shipped in conformance with the applicable requirements of the HMR. (DOT letter of 7JUL92)

DISCLAIMER

The information, data, and recommendations contained herein are believed to be correct at the time of writing. All materials and mixtures may present unknown hazards and should be used with caution. When necessary or appropriate, independent opinions regarding the risk of handling or exposure should be obtained from trained professionals.