



**MATERIAL SAFETY DATA SHEET**  
COMPLIES WITH 29 CFR 1910.1200.  
OSHA HAZARD COMMUNICATION RULE

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## CHEMICAL IDENTITY

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LABEL IDENTITY	<b>BARIUM FERRITE</b>
CHEMICAL NAME/SYNONYMS	<b>BARIUM HEXAFERRITE, FERROXDURE</b>
FORMULA	<b>BaFe<sub>12</sub>O<sub>19</sub></b>
CHEMICAL FAMILY	<b>MIXED METAL OXIDE</b>
CAS REGISTRY NUMBER	<b>11138-11-7</b>
HAZARDOUS INGREDIENTS	<b>BARIUM FERRITE</b>
%: <b>0.0 - 100.0</b>	ACGIH/TLV: <b>0.5mg(Ba)/m3</b> OSHA/PEL: <b>0.5mg(Ba)/m3</b>

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## PHYSICAL AND CHEMICAL PROPERTIES

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COLOR, FORM AND ODOR	<b>Rust powder, odorless</b>
BOILING POINT	<b>NE or NA</b>
VAPOR DENSITY (air=1)	<b>NA</b>
VAPOR PRESSURE @ 20°	<b>NE</b>
% VOLATILE BY VOLUME (%)	<b>NE or NA</b>
REACTION WITH WATER	<b>NE</b>
EVAPORATION RATE (H2O=1)	<b>NA</b>
SOLUBILITY IN WATER	<b>Insoluble</b>
MELTING POINT	<b>2400°F</b>
SPECIFIC GRAVITY	<b>5.3</b>

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## FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT	<b>NE or NA</b>
EXTINGUISHING MEDIA	<b>Use suitable extinguishing media for surrounding materials and type of fire.</b>
SPECIAL FIRE FIGHTING PROCEDURES <b>contained</b>	<b>Firefighters must wear full face, self-breathing apparatus with full protective clothing to prevent contact with skin and eyes.</b>
UNUSUAL FIRE & EXPLOSION HAZARDS	<b>Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.</b> <b>Barium Ferrite may emit toxic fumes if involved in a fire.</b>



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### HEALTH HAZARD INFORMATION

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TOXICITY DATA: ihl-rat TCLO: 750 ug/m<sup>3</sup>/24H (female 1-22 post): TER  
ihl-rat TCLO: 88 ug/m<sup>3</sup>/24H (female 1-22 post): REP

ROUTES OF ENTRY          INHALATION: **Yes**          SKIN: **Yes**          EYES: **Yes**

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: **Pre-existing respiratory disorder**  
HEALTH HAZARDS (acute and chronic):

**To the best of our knowledge the chemical, physical and toxicological properties of barium ferrite have not been thoroughly investigated and recorded.**

**Iron compounds have varying toxicity. Exposure to iron oxides is potentially a serious risk in all industrial settings. Some iron compounds are suspected carcinogens. In general, ferrous compounds are more toxic than ferric compounds. (Sax, Dangerous Properties of Industrial Materials, eighth edition)**

**INHALATION: acute: may cause irritation of the upper respiratory tract, dizziness, nausea, vomiting, colic, diarrhea, rapid respiration, high blood pressure, irregular heart action, convulsions, paralysis, acute barium poisoning and possibly acute iron poisoning.**

**chronic: may cause chronic barium and iron poisoning.**

**INGESTION: acute: may cause poisoning, vomiting, colic, diarrhea, slow irregular pulse, transient hypertension, convulsions, tremors, muscular paralysis and acute barium poisoning.**  
**chronic: may cause chronic barium poisoning.**

**SKIN: acute: may cause irritation. chronic: may cause dermatitis.**

**EYE: acute: may cause irritation and inflammation. chronic: may cause corneal opacity and blindness.**

**TARGET ORGANS: may affect the upper respiratory system, central nervous system, heart, skin and eyes.**

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CARCINOGENICITY: **no**    NTP: **no**    IARC MONOGRAPHS: **no**    OSHA REGULATE: **no**

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### SIGNS AND SYMPTOMS OF OVEREXPOSURE:

**INHALATION: may cause a red, dry throat. Acute barium poisoning may cause: a slow, hard pulse and elevated blood pressure; excessive salivation; vomiting; colic; violent diarrhea; convulsive tremors; muscular paralysis and paralysis of the central nervous system; strong vasoconstriction, due to the direct barium stimulation of arterial muscles, raises blood pressure. High blood pressure can cause the stomach, intestines and kidneys to hemorrhage. Chronic barium poisoning is similar but less severe than acute barium poisoning. Acute iron poisoning may cause; biphasic shock, a rapid increase in respiration and pulse rate, congestion of blood vessels which may lead to hypertension, pallor and drowsiness. Chronic iron poisoning may cause: hemorrhagic necrosis of the gastrointestinal tract, hepatotoxicity, metabolic acidosis, prolonged blood clotting time, elevation of plasma levels of serotonin and histamine.**



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### HEALTH HAZARD DATA CONTINUED

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INGESTION: **see inhalation for acute and chronic barium symptoms.**  
SKIN CONTACT: **may cause redness, inflammation, itching and burning.**  
EYE CONTACT: **may cause redness, itching, burning, inflammation and watering.**

#### EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: **remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.**  
INGESTION: **give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.**  
SKIN: **remove contaminated clothing, brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.**  
EYE: **flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention.**

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### REACTIVITY DATA

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STABILITY	<b>Stable</b>
CONDITIONS CONTRIBUTING TO UNSTABILITY	<b>None</b>
INCOMPATIBILITY (MATERIALS TO AVOID)	<b>strong acids and bases</b>
HAZARDOUS DECOMPOSITION PRODUCTS	<b>ND</b>
HAZARDOUS POLYMERIZATION	<b>May occur</b>
CONDITIONS TO AVOID	<b>None</b>

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### SAFE HANDLING AND USE

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **Wear appropriate respiratory and protective equipment specified in the next section - control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.**

#### WASTE DISPOSAL METHOD:

**Consult federal, state and local regulations for proper disposal procedure.**

#### HAZARD LABEL INFORMATION:

**Store in cool, dry area. Store in tightly closed container. Wash thoroughly after handling.**

OTHER PRECAUTIONS: **None**



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### CONTROL MEASURES

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RESPIRATORY PROTECTION

**NIOSH approved dust respirator**

VENTILATION:

LOCAL EXHAUST

**To maintain concentration at or below the PEL, TLV**

MECHANICAL

**Recommended**

PROTECTIVE GLOVES

**Rubber Gloves**

EYE PROTECTION

**Safety Glasses**

OTHER PROTECTIVE EQUIPMENT/CLOTHING

**Protective gear to prevent contamination**

WORK HYGIENIC/MAINTENANCE PRACTICES

**Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good house-keeping and sanitation practices. Do not use tobacco or food in the work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.**

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### ADDITIONAL COMMENTS

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**Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direction of, a "technically qualified individual" as defined in 40 CFR 710.20(aa).**

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THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, **ANGSTROM SCIENCES** MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USERS SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

**NA= NOT APPLICABLE**

**ND= NO DATA FOUND**

**NE= NOT ESTABLISHED**