

SECTION 1**CHEMICAL PRODUCTS & COMPANY IDENTIFICATION****LANGELOTH METALLURGICAL COMPANY LLC**

AN AFFILIATE OF THOMPSON CREEK METALS COMPANY

10 LANGELOTH PLANT DRIVE**P.O. BOX 608****LANGELOTH, PA 15054**

FOR EMERGENCY INFORMATION

PRODUCTION: (724) 947-2201

SALES: (303) 761-8801

FAX: (303) 761-7420

CHEMTREC:

Domestic: (800)-424-9300

International: (202)-483-7616

SUBSTANCE: FERROMOLYBDENUM**TRADE NAMES/SYNONYMS:** FERROMOLY; FEMO**CHEMICAL FAMILY:** METAL ALLOY**SECTION 2****COMPOSITION/INFORMATION ON INGREDIENTS****COMPONENT:** Molybdenum**CAS NUMBER:** 7439-98-7**PERCENTAGE:** 62**COMPONENT:** Iron**CAS NUMBER:** 7439-89-6**PERCENTAGE:** 37**SECTION 3****HAZARDS IDENTIFICATION****NFPA RATINGS (SCALE 0-4):** HEALTH = 1 FIRE = 1 REACTIVITY = 0**EMERGENCY OVERVIEW:** May cause irritation to eyes, skin, and respiratory tract. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Keep container closed. Wash thoroughly after handling. Use only with adequate ventilation.**POTENTIAL HEALTH EFFECTS:****SHORT TERM EXPOSURE:** May cause irritation to eyes, skin and respiratory tract. Ingestion may cause vomiting, diarrhea and shock. Additional effects may include coughing, sweating, metallic taste, thirst, chills, fever, nausea, vomiting, diarrhea, frequent urination, headache, weakness and muscle pain. May cause glaucoma.**LONG TERM EFFECTS:** Inhalation may cause difficulty breathing and lung damage.**CARCINOGEN STATUS:**

OSHA: N

NTP: N

IARC: N

SECTION 4**FIRST AID MEASURES****INHALATION: FIRST AID** - Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Get medical attention.**SKIN CONTACT: FIRST AID** - Remove contaminated clothing and shoes. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention.**EYE CONTACT: FIRST AID** - Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention.**INGESTION: FIRST AID** - Get medical attention if needed. If vomiting occurs, keep head lower than hips to prevent aspiration.

SECTION 5**FIRE FIGHTING MEASURES**

FIRE AND EXPLOSION HAZARD: Slight fire hazard when exposed to heat or flame.

EXTINGUISHING MEDIA: Dry chemical, sand, earth, water spray or regular foam (1993 Emergency Response Guidebook, RSPA P 5800.6).

For larger fires, use water spray, fog or regular foam (1993 Emergency Response Guidebook, RSPA P 5800.6).

FIREFIGHTING: Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn (1993 Emergency Response Guidebook, RSPA P 5800.6, Guide page 32).

Extinguish using agent for type of fire. Avoid breathing fumes from burning material.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may release toxic and/or hazardous gases.

SECTION 6**ACCIDENTAL RELEASE MEASURES**

OCCUPATIONAL SPILL: For small spills, with clean shovel, place material into clean, dry container and cover; move containers from spill area. For larger spills, sweep up with a minimum of dusting and place into suitable containers for reclamation or later disposal.

Residue should be cleaned up using a high-efficiency particulate filter vacuum.

SECTION 7**HANDLING AND STORAGE**

STORAGE: Observe all federal, state and local regulations when storing this substance. Store away from incompatible substances.

SECTION 8**EXPOSURE CONTROLS/PERSONAL PROTECTION**

EXPOSURE LIMITS:**MOLYBDENUM, INSOLUBLE COMPOUNDS (AS Mo):**

10 mg/m³ OSHA TWA (total dust)

10 mg/m³ ACGIH TWA

15 mg/m³ DFG MAK TWA (total dust)

150 mg/m³ DFG MAK 30 minute peak, average value, 1 time/shift

IRON OXIDE DUST AND FUME (AS Fe):

10 mg/m³ OSHA TWA (total particulate)

5 mg/m³ ACGIH TWA

5 mg/m³ NIOSH recommended TWA (total particulate)

6 mg/m³ DFG MAK TWA (fine dust)

VENTILATION: Process enclosure ventilation recommended to meet published exposure limits. Ventilation equipment should be explosion-proof.

EYE PROTECTION: Employees should wear splash-proof or dust-resistant safety goggles.

EMERGENCY EYE WASH: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.

CLOTHING: Employees should wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance.

GLOVES: Employees should wear appropriate protective gloves.

RESPIRATOR: The following respirators are recommended based on information found in the physical data, toxicity and health effects sections. They are ranked in order from minimum to maximum respiratory protection. The specific respirator selected must be based on contamination levels found in the work place, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

-Any dust, mist, and fume respirator.

-Any chemical cartridge respirator with a dust, mist, and fume filter.

-Any powered air-purifying respirator with a dust, mist, and fume filter.

-Any type 'c' supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode or with a full facepiece, helmet or hood operated in continuous-flow mode.

-Any self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive-pressure mode.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: Silver-gray alloy of various sizes and shapes

MELTING POINT: 2966 F (1630 C) approximate

SPECIFIC GRAVITY: 9

WATER SOLUBILITY: Insoluble

SECTION 10

STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: Prevent dispersion of dust in air.

INCOMPATIBILITIES:

LITHIUM: Attacks iron alloys.

HAZARDOUS DECOMPOSITION: Thermal decomposition products may include oxides of iron and molybdenum.

POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

SECTION 11

TOXICOLOGY INFORMATION

MOLYBDENUM:

TOXICITY DATA: 114 mg/kg intraperitoneal-rat LDLO; 70 mg/kg intratracheal-rabbit LDLO; mutagenic data (RTECS); reproductive effects data (RTECS).

CARCINOGEN STATUS: None

ACUTE TOXICITY LEVEL: Insufficient data.

TARGET EFFECTS: No data available.

AT INCREASED RISK FROM EXPOSURE: Persons with a history of kidney, chronic respiratory, or liver disease.

IRON:

TOXICITY DATA: 77 mg/kg oral-child TDLO; 30 gm/kg oral-rat LD50; 20 gm/kg oral-guinea pig LD50; 20 mg/kg intraperitoneal-rabbit LDLO; tumorigenic DATA (RTECS).

CARCINOGEN STATUS: None. Iron and steel founding: human sufficient evidence (IARC group-1). The consistency of the excess in studies from around the world shows that certain exposures in iron and steel founding can cause lung cancer in humans. Other cancer excesses reported have included leukemia, and urogenital and digestive system cancers.

ACUTE TOXICITY LEVEL: Relatively non-toxic by ingestion.

TARGET EFFECTS: Poisoning may affect the gastrointestinal, respiratory, nervous and hematopoietic systems and the liver.

HEALTH EFFECTS:

INHALATION:

MOLYBDENUM:

ACUTE EXPOSURE: Inhalation of dust may cause irritation of the respiratory tract. Concentrations of 25,000-30,000 mg/m³/1 hour did not produce any deaths in rats. Exposure to fume concentrations of 53 mg/m³ from arcing molybdenum metal resulted in minimal effects in guinea pigs; 190 mg/m³ resulted in some deaths, with pathological findings revealing bronchial and alveolar irritation with moderate fatty changes in the liver and kidneys.

CHRONIC EXPOSURE: No data available.

IRON:

ACUTE EXPOSURE: Dust may cause mucous membrane and respiratory irritation due to mechanical action. Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed iron oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns. Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes. Lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. Tolerance to fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours.

CHRONIC EXPOSURE: Prolonged or repeated exposure may cause a mottling of the lungs, a condition called siderosis which is considered to be a benign pneumoconiosis that does not cause significant physiologic impairment. Symptoms may include chronic bronchitis, emphysema, and dyspnea on exertion.

SKIN CONTACT:

MOLYBDENUM:

ACUTE EXPOSURE: No data available.

CHRONIC EXPOSURE: No data available.

IRON:

ACUTE EXPOSURE: Dust may cause irritation. Penetration of iron particles in the skin may cause an exogenous siderosis which may be characterized by a red-brown pigmentation of the affected area.

CHRONIC EXPOSURE: No data available.

EYE CONTACT:

MOLYBDENUM:

ACUTE EXPOSURE: Exposure to dust or fumes may cause irritation.

CHRONIC EXPOSURE: No data available.

IRON:

ACUTE EXPOSURE: May cause irritation due to mechanical action. Iron particles imbedded in the eye may cause ocular siderosis. Effects may include discoloration of the cornea and iris, and pupillary effects including poor reaction to light, accommodation, and atropine. If a particle enters the lens there may be cataract formation. Glaucoma occurs rarely in some cases of ocular siderosis.

CHRONIC EXPOSURE: Repeated and prolonged contact may cause conjunctivitis.

INGESTION:

MOLYBDENUM:

ACUTE EXPOSURE: No data available.

CHRONIC EXPOSURE: Ingestion of excess molybdenum in animals resulted in a condition known as "teart", characterized by severe diarrhea, loss of appetite, loss of weight, listlessness, poor performance, reduced growth rate, fading hair color, deformities of joints, and impaired reproduction. Reproductive effects have been reported in animals.

IRON:

ACUTE EXPOSURE: There are no reports available on poisoning from metallic iron. The principal manifestations of poisoning with iron compounds are vomiting, diarrhea, and circulatory collapse.

CHRONIC EXPOSURE: Repeated or prolonged exposure may cause hemosiderosis, or hemochromatosis.

SECTION 12

ECOLOGICAL INFORMATION

No data available.

SECTION 13

DISPOSAL INFORMATION

WASTE DISPOSAL: Observe all federal, state and local regulations when disposing of this substance.

SECTION 14

TRANSPORTATION INFORMATION

No classification currently assigned.

SECTION 15

REGULATORY INFORMATION

TSCA STATUS: Y

OTHER REGULATORY INFORMATION AVAILABLE:

CERCLA SECTION 103 (40 CFR 302.4):	N
SARA SECTION 302 (40 CFR 355.30):	N
SARA SECTION 304 (40 CFR 355.40):	N
SARA SECTION 313 (40 CFR 372.65):	N
OSHA PROCESS SAFETY (29 CFR 1910.119):	N
CALIFORNIA PROPOSITION 65:	N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40 CFR 370.21):

ACUTE HAZARD:	N
CHRONIC HAZARD:	N
FIRE HAZARD:	N
REACTIVITY HAZARD:	N
SUDDEN RELEASE HAZARD:	N

SECTION 16**OTHER**

No Warranty is made, either express or implied. The information contained on this material safety data sheet is offered in good faith as accurate. We have reviewed the information and believe it to be correct but cannot guarantee its accuracy or completeness. Some individuals and/or situations may require health and safety precautions not included on this data sheet. It is the users obligation to evaluate and use this material safely and to comply with all applicable laws and regulations.