

MATERIAL SAFETY DATA SHEET

ELECTROLYTIC MANGANESE METAL FLAKE

Date: February 25, 2008

Revision: 3

SECTION 1. PRODUCT INFORMATION

Product : Electrolytic Manganese Metal Flake
Formula: Mn 99.7% Min, Si 0.065% Max, S 0.025% Max, C 0.04% Max, Fe 0.05% Max, P 0.005% Max, Se 0.05 Max
Manufacturer's Name: Miller and Company LLC
Address: 9700 W. Higgins Road
Suite 1000
Rosemont, IL 60018
Phone: 874-696-2400
Emergency Phone: Chemtrec 800-262-8200
Prepared by: H. F. Linebarger

SECTION 2. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Flaky metal with silver gray metallic luster, minimal odor
Melting Point: 1245 C
Boiling point: 1962 C
Solubility: Negligible

SECTION 3. COMPOSITION / INGREDIENTS

Significant Ingredients:	CAS Registry #
Manganese (Mn)	7439-96-5
Silicon (Si)	7440-21-3
Sulfur (S)	7704-34-9
Carbon (C)	7439-89-6

ACGIH TLV (mg/m3):	OSHA-PEL (mg/m3)
Manganese (as Mn) Dust and Compounds 5 Fume 1 (STEL 3) Proposed 0.2 Silicon 10	Manganese Compounds (as Mn) 5 (Ceiling) Manganese Fume (as Mn) 5 (Ceiling) Silicon Total Dust - 15 Resp. Fraction - 5

SECTION 4. FIRE & EXPLOSION DATA

Combustibility: None— however in powder form when in conjunction with air it can become an explosive and inflammatory mixture
Extinguishing Media: Use dry inert materials (i.e. dry sand). Isolate fire and allow to burn out (Do not flurry dust)
Fire/Explosion Protection: Breath protection

SECTION 5. HEALTH - HAZARD DATA

Inhalation: No known hazard
Skin Contact: No known hazard, wash with soap and water
Eye Contact: Flush eyes with water to insure that no particles remain in eye.
Ingestion: Call for medical attention

SECTION 6. REACTIVITY DATA

Reacts with Water slowly

SECTION 7. SPILL, LEAK, OR DISPOSAL INFORMATION

Accidental release measure: Collect large spills carefully with a non-sparking shovel or scoop and transfer materials to a leak proof container. Do not use wet materials.
Storage and Handling: Store away from open fire, heat and humidity at ambient temperature in a well-ventilated are. Do not store in same area as oxidizing agents or combustible materials.

SECTION 8. EMPLOYEE PROTECTION DATA

When handling Manganese flakes do not eat, drink, smoke or snuff. Take off contaminated clothing. Clean hands with soap and water

Respirators: Dust filters
Gloves: Necessary for the metal may have sharp edges
Eye Protection: Standard Safety Glasses

IMPORTANT: The purpose of this sheet is to set out pertinent information which may be necessary to evaluate health, safety and environmental hazards when handling the material and to set forth safety precautions for safe handling of the material. Handling practices set forth herein are recommended minimums. Century Alloys, Inc. assumes no responsibility in the safe handling of the material by others and makes no representation or warranty, expressed or implied, as to completeness, accurateness, or currency of any data contained herein.