



LTS Research Laboratories, Inc.  
Safety Data Sheet  
Iron Manganese Aluminum Carbon Alloy Steel

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1. Product and Company Identification

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Trade Name: Iron Manganese Aluminum Carbon Alloy Steel  
Chemical Formula: FeMnAlC  
Recommended Use: Scientific research and development

Manufacturer/Supplier: LTS Research Laboratories, Inc.  
Street: 37 Ramland Road  
City: Orangeburg  
State: New York  
Zip Code: 10962  
Country: USA  
Tel #: 855-587-2436 / 855-lts-chem

24-Hour Emergency Contact: 800-424-9300 (US & Canada)  
+1-703-527-3887 (International)

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2. Hazards Identification

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Signal Word: Danger



Hazard Statements:

- H228: Flammable solid
- H250: Catches fire spontaneously if exposed to air
- H261: In contact with water releases flammable gas
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation
- EUH018: In use may form combustible dust concentrations in air

Precautionary Statements:

- P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
- P222: Do not allow contact with air
- P223: Keep away from any possible contact with water, because of violent reaction and possible flash fire
- P240: Ground/bond container and receiving equipment
- P241: Use explosion-proof electrical/ventilating/lighting/equipment
- P261: Avoid breathing dust/fume/gas/mist/vapors/spray
- P264: Wash face, hands and any exposed skin thoroughly after handling
- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P335+P334: Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages
- P337+P313: If eye irritation persists get medical advice/attention
- P370+P378: In case of fire: Use CO<sub>2</sub>, dry chemical for extinction
- P402+P404: Store in a dry place. Store in a closed container
- P403+P233: Store in a well-ventilated place. Keep container tightly closed

P405: Store locked up  
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	2
Flammability:	3
Physical:	2

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### 3. Composition

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Chemical Family:	Alloy
Additional Names:	None

Iron (Fe)

Percentage:	0-100 wt%
CAS #:	7439-89-6
EC #:	231-096-4

Manganese (Mn)

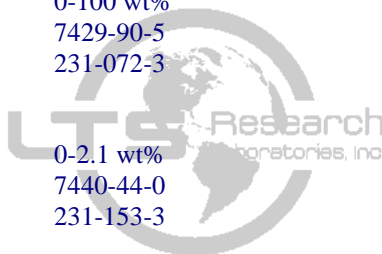
Percentage:	0-100 wt%
CAS #:	7439-96-5
EC #:	231-105-1

Aluminum (Al)

Percentage:	0-100 wt%
CAS #:	7429-90-5
EC #:	231-072-3

Carbon (C)

Percentage:	0-2.1 wt%
CAS #:	7440-44-0
EC #:	231-153-3



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### 4. First Aid Procedures

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General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None

Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek medical attention.
Ingestion:	Rinse mouth with water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek medical attention.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical attention.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

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### 5. Firefighting Measures

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Flammability:	Flammable as powder
Extinguishing Media:	Do not use water for metal fires. Do not use halogenated extinguishing agents or foams. Use CO <sub>2</sub> , Sand, Extinguishing powder
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

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## 6. Accidental Release Measures

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If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. 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 disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

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## 7. Handling and Storage

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Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

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## 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	5 mg/m <sup>3</sup> as Mn, ceiling limit value 15mg/m <sup>3</sup> as Al, long term-value
Threshold Limit Value:	5 mg/m <sup>3</sup> as Fe, long-term value 0.02 mg/m <sup>3</sup> as Mn, respirable, long-term value 0.1 mg/m <sup>3</sup> as Mn, inhalable fraction, long-term value 1mg/m <sup>3</sup> as Al, long-term value 2 mg/m <sup>3</sup> as C (except fibers), resp. fraction, long-term value
Special Equipment:	None
Respiratory Protection:	Use a recommended dust respirator or mask. Only use equipment tested and approved under appropriate government standards.
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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## 9. Physical and Chemical Characteristics

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Color	N/A
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	N/A

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### 10. Reactivity

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Stability: Stable under recommended storage conditions  
Reacts With: Oxidizing agents, Acids, Bases, Halogens, Halogenated compounds, CO<sub>2</sub>  
Incompatible Conditions: Moisture sensitive, Water  
Hazardous Decomposition Products: Iron oxides, Metal oxide fumes, Carbon monoxide, Carbon dioxide, Hydrogen

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### 11. Toxicological Information

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Potential Health Effects:  
Eyes: Causes serious eye damage  
Skin: May cause irritation  
Ingestion: May cause respiratory irritation  
Inhalation: May cause irritation  
Chronic: N/A

Signs & Symptoms: N/A  
Aggravated Medical Conditions: N/A

Median Lethal Dose: 30000 mg/kg for rat by mouth for Fe  
9 g/kg for rat by mouth for Mn

Carcinogen: N/A

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### 12. Ecological Information

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Aquatic Toxicity: Low  
Persistent Bioaccumulation Toxicity: No  
Very Persistent, Very Bioaccumulative: No  
Notes: N/A



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### 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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### 14. Transportation Data

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Hazardous: Hazardous as powder only



Hazard Class: 4.1 Flammable solids  
Packing Group: III  
UN Number: UN3089  
Proper Shipping Name: Metal powders, flammable, n.o.s. (Iron Manganese Aluminum Carbon Alloy Steel)

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### 15. Regulatory Information

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Sec 302 Extremely Hazardous: No  
Sec 304 Reportable Quantities: N/A  
Sec 313 Toxic Chemicals: Yes

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## 16. Other Information

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This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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