



LTS Research Laboratories, Inc.  
Safety Data Sheet  
Aluminum Cobalt Chromium Iron Nickel Manganese

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1. Product and Company Identification

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Trade Name: Aluminum Cobalt Chromium Iron Nickel  
Chemical Formula: AlCoCrFeNi  
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: Warning



Hazard Statements:

H228: Flammable solid  
H250: Catches fire spontaneously if exposed to air  
H261 In contact with water releases flammable gas  
H317: May cause an allergic skin reaction  
H319: Causes serious eye irritation  
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H335: May cause respiratory irritation  
H351: Suspected of causing cancer  
H372: Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements:

P202: Do not handle until all safety precautions have been read and understood  
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  
P231+P232: Handle under inert gas. Protect from moisture  
P240: Ground/bond container and receiving equipment  
P260: Do not breathe dust/fume/gas/mist/vapours/spray  
P264: Wash face hands and any exposed skin thoroughly after handling  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P281: Use personal protective equipment as required  
P284: Wear respiratory 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

P308+P313: IF exposed or concerned: Get medical advice/attention  
P335+P334: Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages  
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician  
P363: Wash contaminated clothing before reuse  
P370+P378: In case of fire: Use CO<sub>2</sub> dry chemical or foam 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:	1
Flammability:	3
Physical:	2

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3. Composition

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Chemical Family:	Alloy
Additional Names:	High Entropy Alloy

Aluminum (Al):

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

Cobalt (Co):

Percentage:	0-100 wt%
CAS #:	7440-48-4
EC #:	231-158-0

Chromium (Cr):

Percentage:	0-100 wt%
CAS #:	7440-47-3
EC #:	231-157-5

Iron (Fe):

Percentage:	0-100 wt%
CAS #:	7439-89-06
EC #:	231-096-4

Nickel (Ni):

Percentage:	0-100 wt%
CAS #:	7440-02-0
EC #:	231-111-4

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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 immediate medical attention.
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Ingestion:	Seek immediate medical attention.
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Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek immediate medical attention
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Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek immediate medical attention
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## 5. Firefighting Measures

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Flammability:	Flammable as powder
Extinguishing Media: Spec. Fire Fighting Procedure:	Do not use water for metal fires – use CO <sub>2</sub> , sand, extinguishing powder. 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: Storage Conditions:	Wash thoroughly after handling. 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:	15 mg/m <sup>3</sup> as Al, long-term value 0.1 mg/m <sup>3</sup> as Co, long-term value 1 mg/m <sup>3</sup> as Cr, long-term value 1 mg/m <sup>3</sup> as Ni, long-term value
Threshold Limit Value:	1 mg/m <sup>3</sup> as Al, long-term value 0.5 mg/m <sup>3</sup> as Cr, long-term value 5 mg/m <sup>3</sup> as Fe, long-term value 0.015 mg/m <sup>3</sup> as Ni, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
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	Grey/Black
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
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:	Water, Strong acids, strong bases, Alcohols, Halogens, Halogenated Compound, CO <sub>2</sub>
Incompatible Conditions:	Halogens, Moisture sensitive
Hazardous Decomposition Products:	Metal oxide fume

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## 11. Toxicological Information

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### Potential Health Effects:

Eyes:	Causes serious eye irritation
Skin:	May cause allergic reaction
Ingestion:	May cause irritation
Inhalation:	May cause allergy or asthma symptoms
Chronic:	Suspected of causing cancer

### Signs & Symptoms:

N/A

### Aggravated Medical Conditions:

N/A

### Median Lethal Dose:

6171 mg/kg as Co for rat by mouth  
30000 mg/kg as Fe for rat by mouth

### Carcinogen:

IARC-2B: Possibly carcinogenic to humans: limited evidence in human in the absence of sufficient evidence in experimental animals.  
ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by routes of administration, at sites, of histologic types, or by mechanisms not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or level of exposure.  
NTP-R: Reasonably anticipated to be a carcinogen, limited evidence of carcinogenicity from epidemiologic studies.

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## 12. Ecological Information

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Aquatic Toxicity:	Moderate
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	Do not allow to reach ground water

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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: 4.3 Dangerous when wet materials  
Secondary Hazard Class: 4.1 Flammable Solids  
Packing Group: II  
UN Number: UN3132  
Proper Shipping Name: Water-reactive solid, flammable, n.o.s (Aluminum Cobalt Chromium Iron Nickel)

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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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