



LTS Research Laboratories, Inc.  
Safety Data Sheet  
Inconel 713 Alloy

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1. Product and Company Identification

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|                            |   |
|----------------------------|---|
| Trade Name:                | Inconel 713 Alloy   |
| Chemical Formula:          | NiCrAlMoTaTiC   |
| 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)<br>+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  
H317: May cause an allergic skin reaction  
H319: Causes serous eye irritation  
H335: May cause respiratory irritation  
H351: Suspected of causing cancer  
H372: Causes damage to organs through prolonged or repeated exposure

Precautionary Statements:

P201: Obtain special instructions before use  
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  
P241: Use explosion-proof electrical/ventilating/lighting/equipment  
P260: Do not breathe dust/fume/gas/mist/vapors/spray  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P308+P313: IF exposed or concerned: Get medical advice/attention  
P370+P378: In case of fire: Use CO<sub>2</sub>, powder or water spray for extinction  
P405: Store locked up  
P422: Store contents under inert gas  
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

|               | Powder | Bulk |
|---------------|--------|------|
| Health:       | 1      | 1    |
| Flammability: | 3      | 0    |
| Physical:     | 3      | 0    |

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### 3. Composition

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|                   |   |
|-------------------|---|
| Chemical Family:  | Alloy   |
| Additional Names: | Nickel Niobium Titanium Molybdenum Chromium Aluminum Carbon alloy |
| Nickel (Ni):      |   |
| Percentage:       | 69.75-78.75 wt%   |
| CAS #:            | 7440-02-0   |
| EC #:             | 231-111-4   |
| Chromium (Cr):    |   |
| Percentage:       | 11-14 wt%   |
| CAS #:            | 7440-47-3   |
| EC #:             | 231-157-5   |
| Aluminum (Al):    |   |
| Percentage:       | 5.5-6.5 wt%   |
| CAS #:            | 7429-90-5   |
| EC #:             | 231-072-3   |
| Molybdenum (Mo):  |   |
| Percentage:       | 3.5-5.5 wt%   |
| CAS #:            | 7439-98-7   |
| EC #:             | 231-107-2   |
| Tantalum (Ta):    |   |
| Percentage:       | 1-3 wt%   |
| CAS #:            | 7440-25-7   |
| EC #:             | 231-135-5   |
| Titanium (Ti):    |   |
| Percentage:       | 0.25-1.25 wt%   |
| CAS #:            | 7440-32-6   |
| EC #:             | 231-142-3   |
| Carbon (C):       |   |
| Percentage:       | 0.20 wt%  |
| CAS #:            | 7782-42-5   |
| EC #:             | 231-955-3   |

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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. Keep patient warm. Seek immediate medical attention.                                       |
| Ingestion:          | Seek immediate medical attention.   |
| Skin:               | Wash affected area with mild soap and water. Remove any contaminated clothing. Seek immediate medical attention.  |
| 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:                  | Non-flammable, except as powder   |
| Extinguishing Media:           | Do not use water or CO <sub>2</sub> for metal fires – use 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. Keep unprotected persons away. Isolate spill area and provide ventilation. Keep away from ignition sources. Do not flush with water or aqueous cleansing agents. 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:       | Avoid contact with the eyes and skin. Handle under dry protective gas. Wash thoroughly after handling.  |
| Storage Conditions:        | Store in a cool dry place in a tightly sealed container. Store under dry inert gas. Store away from acids, oxidizing agents, strong bases, halogens, halocarbons, mineral acids, halogenated compounds, air, water/moisture. This product is air sensitive. This product is moisture sensitive. Protect from humidity and water. Protect against electrostatic charges. 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: | 0.5 mg/m <sup>3</sup> as Cr, long-term value  |
| Threshold Limit Value:       | 0.5 mg/m <sup>3</sup> as Cr, long-term value  |
| Special Equipment:           | Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. |
| Respiratory Protection:      | Dust Respirator   |
| Protective Gloves:           | Nitrile rubber gloves with minimum thickness of 0.11 mm   |
| 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   |
| Form:                     | Powder, Granules, Pellets, Sputtering target, Custom parts |
| Odor:                     | Odorless   |
| Water Solubility:         | Contact with water releases flammable gases                |
| 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. In contact with water releases flammable gasses, which may ignite spontaneously. Catches fire spontaneously if exposed to air. Risk of dust explosion.  |
| Reacts With:                      | Oxidizing agents, acids, air, bases, halogens, halocarbons, mineral acids, water/moisture, Sulphur compounds, Hydrogen gas, Oxygen, Methanol, organic solvents, Fluorine, Ammonia, carbon dioxide, chlorinated solvents, Bromine trifluoride, Chlorine trifluoride, lead oxide |
| Incompatible Conditions:          | Air, water/moisture, heat, flames and sparks, acids, bases, halocarbons, halogens, extremes of temperature and direct sunlight.  |
| Hazardous Decomposition Products: | Metal oxide fume, Molybdenum oxides, Aluminum oxide, Nickel oxide, Tantalum oxide.   |

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## 11. Toxicological Information

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|                                |   |
|--------------------------------|---|
| Potential Health Effects:      |   |
| Eyes:                          | Causes serious eye irritation   |
| Skin:                          | May cause irritation or an allergic skin reaction   |
| Ingestion:                     | May cause irritation  |
| Inhalation:                    | May cause irritation  |
| Chronic:                       | Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalation  |
| Signs & Symptoms:              | Cough, weight loss, anemia, Weakness, Incoordination.   |
| Aggravated Medical Conditions: | N/A   |
| Median Lethal Dose:            | 5,000 mg/kg for rat by mouth as Mo  |
| Carcinogen:                    | Suspected of causing cancer<br>IARC: 1 - Group 1: Carcinogenic to humans (Nickel, powder [particle diameter < 1 mm])<br>2B - Group 2B: Possibly carcinogenic to humans (Nickel, powder [particle diameter < 1 mm])<br>NTP: RAHC - Reasonably anticipated to be a human carcinogen (Nickel, powder [particle diameter < 1 mm]) |

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## 12. Ecological Information

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|-------------------|--|
| Aquatic Toxicity: | Toxicity to fish semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 15.3 mg/l - 96 h (Nickel)<br>Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 800 mg/l - 96 h (Molybdenum)<br>mortality LOEC - Oncorhynchus mykiss (rainbow trout) - 500 mg/l - 96 h |
|-------------------|--|

Toxicity to fish LC50 - Cyprinus carpio (Carp) - 14.3 mg/l - 96 h (Chromium)  
Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 0.07 mg/l - 48 h (Chromium)  
Oncorhynchus mykiss (rainbow trout) - 30 d - 50 µg/l  
Bioconcentration factor (BCF): 1.03 - 1.22 (Chromium)  
Persistent Bioaccumulation Toxicity: N/A  
Very Persistent, Very Bioaccumulative: N/A  
Notes: Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.  
May cause long lasting harmful effects to aquatic life.  
Harmful to aquatic organisms.  
Avoid transfer into the environment.

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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, self-reactive substances and solid desensitized explosives.  
Packing Group: II  
UN Number: UN3089  
Proper Shipping Name: Metal powders, flammable, n.o.s (Inconel 713 Alloy)

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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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