

Titanium Aluminum Vanadium Alloy SAFETY DATA SHEET

Titanium

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Titanium Aluminum Vanadium Alloy - sheet, rod, wire

Other: Titanium 6Al-4V, Titanium 6/4, Titanium Grade 5

Supplier: Eagle Alloys Corporation

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24 HOUR EMERGENCY ASSISTANCE: CHEMTREC 800-424-9300

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Not classified as hazardous

GHS Label Elements:

Signal Word: N/A

Hazard Statements: N/A

Precautionary Statements: N/A

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient:	CAS#:	%:	EC#:
Titanium	7429-32-6	88-90	231-142-3
Aluminum	7429-90-5	5.5-6.75	231-072-3
Vanadium	7440-62-2	3.5-4.5	231-171-1
Iron	7439-89-6	<1	231-096-4

4 FIRST AID MEASURES

General Measures: Under normal handling and use, exposure to solid forms of this material present few health hazards. Subsequent operations such as grinding, melting or welding may produce potentially hazardous dust or fumes which can be inhaled or come in contact with the skin or eyes.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, brush material off skin, wash affected area with soap and water. Seek medical attention if symptoms develop or persist.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms develop or persist.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

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5 FIREFIGHTING MEASURES

Extinguishing Media: Use suitable extinguishing agent for surrounding materials and type of fire.

Unsuitable Extinguishing Media: Do not use water in fighting fires around molten metal. Do not use halogenated extinguishing agents on small chips/fines.

Specific Hazards Arising from the Material: This product does not present fire or explosion hazards as shipped. Small chips, fine turnings and dust from processing may be readily ignitable. May emit toxic metal oxide fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing when necessary.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Avoid dust formation.

Methods and Materials for Containment and Cleaning Up: Sweep or scoop up. Place in appropriate waste disposal container.

Environmental Precautions: Do not allow to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Avoid creating dust as dusts may present a fire hazard. See section 8 for information on personal protection equipment.

Conditions for Safe Storage: Store in a cool, dry area. Store away from acids. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: OSHA/PEL:

Titanium	No exposure limit established
Aluminum	5 mg/m ³ (respirable)
Vanadium	No exposure limit established

ACGIH/TLV:

No exposure limit established
1 mg/m ³ (respirable)
No exposure limit established

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not allow dusts to accumulate as they may present a serious fire hazard. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Respiratory Protection: If permissible levels are exceeded, use NIOSH approved dust respirator.

Eye Protection: Safety glasses

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Solid in various forms

Color: Silver gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 1600 °C - 1650 °C

Boiling Point: No data

Flash Point: N/A

Evaporation Rate: N/A

Flammability: N/A

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Upper Flammable Limit: No data
Lower Flammable Limit: No data
Vapor Pressure: No data
Vapor Density: N/A
Relative Density (Specific Gravity): ~4.5 g/cc @ 20 °C
Solubility in H₂O: Insoluble
Partition Coefficient (n-octanol/water): Not determined
Autoignition Temperature: No data
Decomposition Temperature: No data
Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Titanium fines or dusts will burn when exposed to an ignition source.

Conditions to Avoid: Avoid creating or accumulating fines or dusts.

Incompatible Materials: Acids, oxidizing agents.

Hazardous Decomposition Products: Titanium oxide fume.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

Symptoms of Exposure: May cause irritation if dusts or fumes are inhaled or swallowed. Fines/dusts may irritate skin and eyes.

Acute and Chronic Effects:

Titanium: Titanium is generally considered to be physiologically inert.

Aluminum: There is strong evidence that aluminum (compounds) can cause irritation following exposure via either inhalation or injection. Modest evidence of an effect exists for reproductive toxicity following oral exposure, for neurological toxicity following either oral or injection exposure, and for bone toxicity following injection exposure. All other effects were judged to be supported by either limited evidence or no clear evidence at all.¹

Vanadium: No data

Acute Toxicity: No data

Carcinogenicity: No components of this alloy have been identified by NTP or IARC as carcinogenic.

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment without proper governmental permits. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

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14 TRANSPORT INFORMATION

Shipping Regulations: Not regulated

UN Number: N/A

UN Proper Shipping Name: N/A

Transport Hazard Class: N/A

Packing Group: N/A

Marine Pollutant: No

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): N/A

Canada WHMIS Classification (CPR, SOR/88-66): N/A

HMIS Ratings: Health: 0 **Flammability:** 0 **Physical:** 0

NFPA Ratings: Health: 0 **Flammability:** 0 **Reactivity:** 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

¹Krewski et al. (2007) Human Health Risk Assessment for Aluminum, Aluminum Oxide, and Aluminum Hydroxide, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2782734/>

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Prepared by: Eagle Alloys Corporation

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