



LTS Research Laboratories, Inc.
Material Safety Data Sheet
Zirconium Vanadium Cobalt Alloy

1. Product and Company Identification

Trade Name: Zirconium vanadium cobalt alloy
Chemical Formula: Zr-V-Co
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)

2. Hazards Identification

Signal Word: Danger



Hazard Statements: H228 Flammable solid
H334 May cause an allergic skin reaction
H319 Causes serious eye irritation

Precautionary Statements: P210 Keep away from heat/sparks. No smoking.
P261 Avoid breathing dust/fume/vapor
P305+P351 If in eyes: Rinse cautiously with water for several minutes.
P370+P378 In case of fire, use special powder for metal fires, not water

HMIS Health Ratings (0-4):
Health: 1
Flammability: 0 (3 as powder)
Physical: 2

3. Composition

Chemical Family:	Metal alloy
Additional Names:	N/A
Zirconium (X ₂ Z ₃):	
Percentage:	0-100 wt%
CAS #:	7440-67-7
EC #:	231-176-9
Vanadium (V):	
Percentage:	0-100 wt%
CAS #:	7440-62-2
EC#:	231-171-1
Cobalt (Co):	
Percentage:	0-100 wt%
CAS #:	7440-48-4
EC #:	231-158-0

4. First Aid Procedures

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.
Ingestion:	Give one to two glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

5. Fire and Explosion Hazards Data

Flammability:	Non-flammable, except as powder
Flash Point:	N/A
Autoignition Temperature:	N/A
Extinguishing Media:	Do not use water for metal fires – use CO ₂ , 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.

6. Accidental Release Measures

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.

7. Handling and Storage

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.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	0.1 mg/m ³ as Co metal dust/fume, long-term value 5 mg/m ³ as Zr, long-term value
Threshold Limit Value:	0.2 mg/m ³ as Co 5 mg/m ³ as Zr long term value, 10 mg/m ³ short 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.

9. Physical and Chemical Characteristics

Color	Metallic grey
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	1300-1900 °C
Density:	N/A
Molecular weight:	N/A

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents, Acids
Incompatible Conditions:	Heat, Sparks
Hazardous Decomposition Products:	Metal oxide fume

11. Toxicological Information

Potential Health Effects:	
Eyes:	Causes serious irritation
Skin:	May cause allergic reaction, may cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	6171 mg/kg for rat by mouth as Co
Carcinogen:	N/A

12. Ecological Information

Ecological data is not available.

13. Disposal Considerations

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

14. Transportation Data

Hazardous: Hazardous as powder only.



Hazard Class: 4.1 Flammable solids, self-reactive substances, and solid desensitized explosives

Packing Group: III

UN Number: UN3089

Proper Shipping Name: Metal powder, flammable, n.o.s. (Cobalt powder)

15. Regulatory Information

Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: Yes

16. Other Information

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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