



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
H315: Causes skin irritation
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

Precautionary Statements:
P210: Keep away from heat/sparks. No smoking.
P240: Ground/bond container and receiving equipment
P241: Use explosion-proof electrical/ventilating/light/.../equipment
P261: Avoid breathing dust/fume/vapor
P280: Wear protective gloves/protective clothing/eye protection/face protection
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
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P370+P378: In case of fire, use special powder for metal fires, not water
P363: Wash contaminated clothing before reuse
P405: Store locked up
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:	2	0

3. Composition

Chemical Family: Metal alloy
Additional Names: N/A

Zirconium (Zr):
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 CO₂, 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:	0.02 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:	1240-1495 °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, Water, Strong acids, Strong oxidizing agents, Hydrogen Fluoride, Phosphorus, Oxygen
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:

IARC-2B: Possibly carcinogenic to 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 levels of exposure.

12. Ecological Information

Do not allow material to be released to the environment without proper governmental permits. Do not allow undiluted product or large quantities to reach ground water, water course, or sewage system. Avoid transfer to the environment. May cause long lasting harmful effects to aquatic life.

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

Secondary class:

4.2 Substances liable to spontaneous combustion

Packing Group:

II

UN Number:

UN3089

Proper Shipping Name:

Metal powder, flammable, n.o.s. (Zirconium vanadium cobalt alloy powder)

15. Regulatory Information

Sec 302 Extremely Hazardous:

No

Sec 304 Reportable Quantities:

N/A

Sec 313 Toxic Chemicals:

Yes, Co, V

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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