1. Product and Company Identification

Trade Name:	Vanadium pentoxide
Chemical Formula:	V_2O_5
Recommended Use:	Scientific research and development
Manufacturer/Supplier:	LTS Research Laboratories, Inc.
Street:	2001 Oaks Pkwy
City:	Charlotte
State:	North Carolina
Zip Code:	28012
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:
H302 + H332: Harmful if swallowed or if inhaled
H318: Causes serious eye damage
H341: Suspected of causing genetic defects
H351: Suspected of causing cancer
H361: Suspected of damaging fertility or the unborn child
H372: Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled
H400: Very toxic to aquatic life
H411: Toxic to aquatic life with long lasting effects

Precautionary Statements:
P202: Do not handle until all safety precautions have been read and understood
P260: Do not breathe dust/fume/gas/mist/vapors/spray
P264: Wash face, hands, and any exposed skin thoroughly after handling
P270: Do not eat, drink, or smoke when using this product
P271: Use only outdoors or in a well-ventilated area
P273: Avoid release to the environment
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection
P281: Use personal protective equipment as required
P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth
P304 + P340 + P312: IF INHALED: Remove victim to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell
P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. Immediately call a POISON CENTER/ doctor
P308 + P313: IF exposed or concerned: Get medical advice/ attention.
P391: Collect spillage
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:	3
Flammability:	0
Physical:	0

3. Composition

Chemical Family:	Ceramic
Additional Names:	Vanadium(V) oxide, Vanadium oxide, Vanadia, Divanadium pentaoxide, Vanadic anhydride

Vanadium oxide (V_2O_5):

Percentage:	100 wt%
CAS No:	1314-62-1
EC No:	215-239-8

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. Seek medical attention.
Ingestion:	Rinse mouth with water. Do not induce vomiting. Seek medical attention.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical attention.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

5. Firefighting Measures

Flammability:	Non-flammable, except as powder
Extinguishing Media:	No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. 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. See section 10 for decomposition products.

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:	0.05 mg/m^3 as V_2O_5, long-term value
Threshold Limit Value:	0.05 mg/m^3 as V_2O_5, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves Check gloves prior to each use
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	Amber
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Soluble
Boiling Point:	1750 °C
Melting Point:	690 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	3.35 g/cm^3
Molecular weight:	181.88 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Strong acids, Reducing Agent, Alkali metals, halogens, Performic acid, Alkaline earth metals, Highly flammable solvents, Oxidizable substances, Sulfur
Incompatible Conditions:	Combustible material
Hazardous Decomposition Products:	N/A

11. Toxicological Information

Potential Health Effects:

Eyes:	Causes serious eye damage
Skin:	May cause irritation
Ingestion:	Harmful if swallowed
Inhalation:	Harmful if inhaled
Chronic:	N/A

Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	LD50= 466.93 mg/kg 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.

12. Ecological Information

Aquatic Toxicity:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach any water sources. Danger to drinking water if even extremely small quantities leak into the ground. Avoid transfer into the environment

13. Disposal Considerations

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

14. Transportation Data

Hazardous: Hazardous for transportation

Hazard Class:	6.1
Packing Group:	III
UN Number:	UN2862
Proper Shipping Name:	Vanadium Pentoxide

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.

Document Last Revised: 02/17/2023