SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Yttrium Vanadate

Product Code: Y-VO-05-C

CAS Number: 13566-12-6

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements 10884 Weyburn Ave. Los Angeles, CA 90024 Tel: +1 310-208-0551 Fax: +1 310-208-0351 Emergency telephone number: Domestic, North America +1 800-424-9300 International +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Signal Word: Danger

Hazard Statements:
H315 Causes skin irritation
H310: Fatal in contact with skin
H319 Causes serious eye irritation
H302+H332: Harmful if swallowed or if inhaled
H341: Suspected of causing genetic defects
H361: Suspected of damaging fertility or the unborn child
H335: May cause respiratory irritation
H372: Causes damage to organs through prolonged or repeated exposure

Precautionary Statements:
P260: Do not breathe dust/fume/gas/mist/vapors/spray
P280: Wear protective gloves/protective clothing/eye protection/face protection
P264: Wash thoroughly after handling
P361: Remove/Take off immediately all contaminated clothing
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P302+P350: IF ON SKIN: Gently wash with plenty of soap and water
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P337+P313: If eye irritation persists get medical advice/attention
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family:
Ceramic
Additional Names:
Yttrium vanadium oxide, Yttrium orthovanadate
Yttrium vanadate (YVO₄):
Percentage: 100 wt%
CAS#: 13566-12-6
EC #: 236-965-1

SECTION 4. FIRST AID MEASURES

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:
Seek medical attention
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

SECTION 5. FIREFIGHTING MEASURES

Flammability:
Non-flammable
Extinguishing Media:
No special restrictions – use suitable extinguishing agent for surrounding material and type of fire.
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.
SECTION 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.

SECTION 7. HANDLING AND STORAGE

Handling Conditions:
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 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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Permissible Exposure Limits:
0.1 mg/m3 as V2O5, long-term value
Threshold Limit Value:
0.05 mg/m3 as V2O5, long-term value
Special Equipment: None
Respiratory Protection:
Use a respirator with type P100 (USA) or P3 (EN143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
Protective Gloves:
Nitrile rubber, NBR 0.11mm thick.
Eye Protection:
Safety glasses or goggles
Body Protection:
Protective work clothing.
Wear close-toed shoes and long sleeves/pants.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Color: N/A
Form: Powder, Granules, Pellets, Sputtering target, Custom parts
Odor: Odorless
**SECTION 10. STABILITY AND REACTIVITY**

Stability: Stable under recommended storage conditions  
Reacts With: Mineral acids, Oxidizing agents  
Incompatible Conditions: Water/moisture  
Hazardous Decomposition Products: Metal oxide fume

**SECTION 11. TOXICOLOGICAL INFORMATION**

Potential Health Effects:  
Eyes: May cause irritation  
Skin: May cause irritation  
Ingestion: Harmful  
Inhalation: Toxic  
Chronic:  
Yttrium is similar to the lanthanons and may have an anticoagulant effect on blood. Exposure to lanthanons may also lead to sensitivity to heat, itching, increased awareness of odor and taste, and liver damage  
Signs & Symptoms: N/A  
Aggravated Medical Conditions: N/A  
Median Lethal Dose:  
566 mg/kg by mouth to rat as V2O3  
200 mg/kg by skin to rabbit as V2O3  
Carcinogen: N/A

**SECTION 12. ECOLOGICAL INFORMATION**

Aquatic Toxicity: High  
Persistent Bioaccumulation Toxicity: No  
Very Persistent, Very Bioaccumulative: No  
Notes:  
Very toxic for aquatic organism.  
May cause long lasting harmful effect on aquatic life.  
Do not allow material to be released to the environment without official permits.  
Do not allow product to reach any water sources.  
Danger to drinking water if even extremely small quantities leak into the ground.  
Also poisonous for fish and plankton in water bodies  
Avoid transfer into the environment.
SECTION 13. DISPOSAL CONSIDERATIONS
Dispose of in accordance with local, state, national, and international regulations.

SECTION 14. TRANSPORT INFORMATION
Hazardous:
Hazardous for transportation as powder.
Hazard Class: 6.1 Toxic substances
Packing Group: II
UN Number: UN3285
Proper Shipping Name:
Vanadium compound, n.o.s (Yttrium vanadate)

SECTION 15. REGULATORY INFORMATION
Sec 302 Extremely Hazardous:
No
Sec 304 Reportable Quantities:
N/A
Sec 313
Toxic Chemicals: Yes (Vanadium oxide)

16. OTHER INFORMATION
Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2016 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.