**CHEMICAL IDENTIFICATION**

<table>
<thead>
<tr>
<th>Chemical Name/Synonyms</th>
<th>Vanadium PentoXide, Vanadic Anhydride</th>
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</thead>
<tbody>
<tr>
<td>Formula</td>
<td>V2O5</td>
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<tr>
<td>Chemical Family</td>
<td>Metal Oxide</td>
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<tr>
<td>Hazardous Ingredients</td>
<td>Vanadium Oxide</td>
</tr>
<tr>
<td>%:</td>
<td>100</td>
</tr>
<tr>
<td>CAS:</td>
<td>1314-62-1</td>
</tr>
<tr>
<td>TLV:</td>
<td>0.05 mg/m3</td>
</tr>
<tr>
<td>OSHA/PEL:</td>
<td>0.5 mg/m3</td>
</tr>
</tbody>
</table>

**Physical and Chemical Properties**

- **Color, Form and Odor**: Yellow to rust colored powder, odorless
- **Boiling Point**: Loses O2 over 700, decomposes at 1750
- **Density (gm/cc)**: 3.357
- **Vapor Pressure @ 20°**: NA
- **% Volatile by Volume (%)**: NA
- **Reaction with Water**: None
- **Evaporation Rate (H2O=1)**: NA
- **Solubility in Water**: 1g/125ml H2O
- **Melting Point**: 690
- **Other**: Oxidizer, slightly hygroscopic

**Fire and Explosion Hazard Data**

- **Flash Point**: NA
- **Autoignition Temperature (°C)**: NA
- **Flammability**: Non-flammable
- **Extinguishing Media**: Use dry chemical, CO₂
- **Special Fire Fighting Procedures**: Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.
- **Unusual Fire & Explosion Hazards**: May increase combustion rate. Material emits acrid smoke and fumes of VOX when heated to decomposition

**Health Hazard Information**

**Toxicity Data**:

- ihl-hmn TCLO: 346mg/m3: PUL
- orl-rat LD50: 10mg/kg
- ipr-rat LD50: 12mg/kg
- itr-rat LDLO: 25mg/kg
- ihl-cat LCLO: 500mg/m3/23M
- ivn-rbt LDLO: 10mg/kg

- ihl-hmn TCLO: 1mg/m3/8H: ALR
- ihl-rat LCLO: 70mg/kg
- scu-rat LD50: 14mg/kg
- scu-mus LD50: 10mg/kg
- scu-rbt LDLO: 20mg/kg
- scu-gpg LDLO: 20mg/kg
VANADIUM OXIDE (PENTOXIDE)
MATERIAL SAFETY DATA SHEET

HEALTH HAZARD INFORMATION

HMIS RATING:
   HEALTH: 3* FLAMMABILITY: 1 REACTIVITY: 1 PERSONAL PROTECTION: J

ROUTES OF ENTRY
   INHALATION: Yes
   SKIN: Yes
   INGESTION: Yes

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Primarily Respiratory Disorders

EFFECTS OF OVEREXPOSURE (acute and chronic):
INHALATION: Symptoms include respiratory irritation, heavy coughing, sneezing, shortness of breath, chest pain, bronchitis. Some symptoms may be delayed 6-24 hrs. Rales and ronchi may also occur.
DERMAL: May cause papular skin rash, extremely irritating to skin, burns possible.
EYE: Extremely irritating, watering, burning sensation.
INGESTION: Pallor, greenish-black tongue, palpitation, diarrhea, nausea, vomiting, convulsions, limb paralysis, salivation. Chronic exposure to vanadium compounds may cause chronic bronchitis, emphysema, pulmonary edema, allergic eczema, liver and kidney damage, blood changes, conjunctivitis and loss of appetite.

CARCINOGENICITY: None NTP: No IARC MONOGRAPHS: NO OSHA REGULATE: NO

EMERGENCY FIRST AID PROCEDURES: (seek immediate medical attention for all of the following)
INGESTION: Administer 1-2 cups of water or milk and induce vomiting
INHALATION: Remove to fresh air & administer oxygen if breathing is difficult
SKIN CONTACT: Wash affected area with mild soap and water
EYE CONTACT: Flush eyes for at least 15 minutes with lukewarm water

REACTIVITY DATA

STABILITY
   Stable
CONDITIONS CONTRIBUTING TO UNSTABILITY
   None
CONDITIONS CONTRIBUING TO UNSTABILITY (MATERIALS TO AVOID)
   Ca+S+H2O, ClF3, Li, organics, per oxyformic acid, easily oxidizable materials
   VOx
INACOMPATIBILITY (MATERIALS TO AVOID)
   Incompatible materials
HAZARDOUS DECOMPOSITION PRODUCTS
   VOx
HAZARDOUS POLYMERIZATION
   Will Not Occur
CONDITIONS TO AVOID
   Incompatible materials
SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wear self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure that proper ventilation is available and that water/moisture is kept out of the area. Vacuum up spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

WASTE DISPOSAL METHOD: Consult federal, state and local regulations for proper disposal.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION
NIOSH approved dust-mist-fume respirator
LOCAL EXHAUST
Maintain below TLV
MECHANICAL (general)
Recommended
SPECIAL
NA
OTHER
NA
PROTECTIVE GLOVES
Neoprene
EYE PROTECTION
Safety goggles
OTHER PROTECTIVE EQUIPMENT
Wear protective apparel to prevent skin and clothing contamination

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
Store in cool, dry location away from incompatible materials. Wash hands and face thoroughly after handling and before eating. Keep containers closed, as V2O5 will absorb some moisture from the air.

TRANSPORTATION REQUIREMENTS
DOT CLASS: Poison
UN NUMBER: 2862
IMCO CLASS: 6.1
OTHER: ---

PRECAUTIONARY LABELING
NONE

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NA= NOT APPLICABLE ND= NO DATA FOUND