MATERIAL SAFETY DATA SHEET
AMMONIUM METAVANADATE

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	:	Ammonium metavanadate
CAS	:	7803-55-6
Synonym	:	Ammonium monovanadate
Chemical Name	:	Vanadic acid, ammonium salt
Chemical formula	:	NH_4VO_3
Molecular weight	:	116.98

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SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Composition:

Chemical Name	CAS #	% weight
Ammonium metavanadate	7803-55-6	100

Toxicological Data on Ingredients: Ammonium metavanadate: ORAL (LD50): Acute: 58.1 mg/kg [Rat]. 25 mg/kg [Mouse]. DERMAL (LD50): Acute: 2102 mg/kg [Rat]. DUST (LC50): Acute: 7.8 mg/m 4 hours [Rat].

SECTION 3: HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.
Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, the nervous system, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

SECTION 4: FIRST AID MEASURES

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

SECTION 5: FIRE AND EXPLOSION DATA

Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: Not available.
Special Remarks on Explosion Hazards: Not available.

SECTION 6: ACCIDENTAL RELEASES MEASURE

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill:
Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

SECTION 7: HANDLING AND STORAGE

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.
Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION 8: PERSONAL PROTECTION

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits:

TWA: 0.05 (mg(V2O5)/m) [Australia] TWA: 0.05 (mg(V2O5)/m) [France] STEL: 0.05 (mg(V2O5)/m) from NIOSH [United States] Inhalation TWA: 0.05 (mg(V2O5)/m) [United Kingdom (UK)] (dust) TWA: 0.5 (mg(V2O5)/m) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Solid. (Powdered solid. Crystalline powder.)
Odor: Not available.
Taste: Not available.
Molecular Weight: 116.98 g/mole
Color: White to yellowish.
pH (1% soln/water): Not available.
Boiling Point: Not available.
Melting Point: Decomposition temperature: 200°C (392°F)
Critical Temperature: Not available.
Specific Gravity: 2.326 (Water = 1)
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: Not available.
Solubility:
Partially soluble in hot water. Very slightly soluble in cold water. Insoluble in diethyl ether. Soluble in 165 parts water; more soluble in hot water, and in dilute ammonia. Solubility in water: 0.52 g/1 @ 15 deg. C; 6.95 g/l water @ 96 deg. C. Insoluble in saturated ammonium chloride solution. Insoluble in alcohol. Readily soluble in mono- and diethanolamine.

SECTION 10: STABILITY AND REACTIVITY DATA

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Incompatible materials, dust generation, exposure to moist air or water, excess light
Incompatibility with various substances: Reactive with oxidizing agents, acids.
Corrosivity: Not available.
Special Remarks on Reactivity: Not available.
Special Remarks on Corrosivity: Not available.
Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation. Ingestion.
Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 25 mg/kg [Mouse]. Acute dermal toxicity (LD50): 2102 mg/kg [Rat]. Acute toxicity of the dust (LC50): 7.8 4 hours [Rat].
Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. May cause damage to the following organs: blood, the nervous system, upper respiratory tract.
Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator).
Special Remarks on Toxicity to Animals: Not available.
Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenic). May cause adverse reproductive effects and birth defects (teratogenic)
Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation. May cause a greenish discoloration of the skin. It may be absorbed by the skin. Eyes: Causes eye irritation. May cause conjunctivits. Inhalation: Toxic. May be fatal if inhaled. Causes upper respiratory tract (throat) and mucous membrane irritation. Inhalation of vanadium and vanadium compounds may cause sore throat, shortness of breath, labored breathing, coughing, rhinitis, epstaxis, pulmonary edema, green tongue, metallic taste, dry mouth, pharyngitis, diffuse pulmonary fibrosis, bronchitis, tracheitis. Ingestion: Toxic. May be fatal if swallowed. Causes

gastrointestinal tract irritation. Symptoms may include nausea, vomiting, Abdominal cramping, hypermotility and diarrhea. It may also affect behavior/central nervous system/nervous system (central nervous system depression, headache, tremors, tinnitus, somnolence, coma, convulsions), urinary system (kidneys -proteinuria, erythrocyturia, leukocyturia), blood (thrombocytopenia, anemia, neutropenia, basophilic granulation of leukocytes). Vanadium compounds can cause polycythemia, followed by red blood cell destruction, anemia, loss of appetite, pallor, emaciation and may affect the cardiovascular system (arythmias, bradycardia, vasospasm/vasoconstriction of the lungs, spleen, kidneys, and intestines. May also cause a greenish-black tongue discoloration due to deposition of vanadium salts. Chronic Potential Health Effects: Skin: Prolonged or repeated exposure may cause sensitization dermatitis. May produce scattered allergy-like

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.
BOD5 and COD: Not available.
Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation: Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Classification: CLASS 6.1: Poisonous material.
Identification: : Ammonium Metavanadate UNNA: 2859 PG: II
Special Provisions for Transport: Not available.

SECTION 15: OTHER REGULATORY INFORMATION

Other Classifications:
WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
DSCL (EEC):
HMIS (U.S.A.):
Health Hazard: 4
Fire Hazard: 0
Reactivity: 0
Personal Protection: E
National Fire Protection Association (U.S.A.):
Health: 4
Flammability: 0
Reactivity: 0
Specific hazard:
Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

SECTION 16: OTHER INFORMATION

Product Use:

Laboratory Reagent.

Disclaimer:

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