

# MATERIAL SAFETY DATA SHEET

## COMPANY DETAILS

<b>Name:</b> Vanádio de Maracás S/A	<b>Emergency Phone:</b> +55 71 99725-7931
<b>Address:</b> Fazenda São Conrado, km 18, s/n Povoado Porto Alegre	
<b>Phone:</b> +55 73 3047-0500	

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Trade Name:</b> Ammonium metavanadate	<b>Chemical abstract no:</b> 7803-55-6
<b>Chemical family:</b> NH4VO3	<b>NIOSH no:</b>
<b>Chemical name:</b> AMV	<b>Hazchem code:</b>
<b>Synonyms:</b>	<b>UN no:</b> 2859

## 2. COMPOSITION

<b>Hazardous components:</b>	Vanadium
<b>EEC classification:</b>	232-261-3
<b>R Phrases:</b>	R20c, S22, S2

## 3. HAZARDS IDENTIFICATION

<b>Eye effects – eyes:</b>	Irritation, redness, pain and flood of tears.
<b>Health effects – skin:</b>	Burning, redness and itching. Harmful, vomiting, abdominal spasm. Irritation of nose, throat and respiratory, coughing, shortness of breath, headache. High concentrations: Bronchitis and pneumonitis.
<b>Health effects – ingestion:</b>	
<b>Health effects – inhalation:</b>	
<b>Carcinogenicity:</b>	Not applicable
<b>Mutagenicity:</b>	Not applicable
<b>Neurotoxicity:</b>	Not applicable

## 4. FIRST AID MEASURES

<b>Product in eyes:</b>	Rinse opened eye for several minutes under running water, seek medical advice.
<b>Product on skin:</b>	Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.
<b>Product ingested:</b>	Do not induce vomiting, immediately call for medical help. Seek immediate medical advice. Supply fresh air, if required, provide artificial respiration. Keep patient warm.
<b>Product inhaled:</b>	Seek immediate medical advice.

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5. FIRE FIGHTING MEASURES	
Extinguishing media:	Product is not flammable. Use fire-fighting measures that suit the surrounding fire.
Special hazards:	In case of fire, toxic metal oxide fumes can be released (NH <sub>3</sub> fumes).
Protective clothing:	Wear self-contained respirator and fully protective impervious suit.
6. ACCIDENTAL RELEASE MEASURES	
Personal precautions:	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.
Environmental precautions:	Do not allow material to be released to the environment without proper governmental permits.
Small spills:	Sweep up/ vacuum filter or wet clean-up.
Large spills:	Sweep up/ vacuum filter or wet clean-up.
7. HANDLING AND STORAGE	
Suitable material:	Drums with plastic linings. Bags with plastic linings.
Handling/storage precautions:	Keep container/bag tightly sealed. Store in cool, dry place in tightly closed containers/bags. Ensure good ventilation. No special requirements to be met by storerooms and receptacles. Do not store together with oxidising and acidic materials. Store away from water/moisture. This product is hygroscopic. Store under lock and key with access restricted to technical experts or heir assistance only.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION	
Occupational exposure limits:	TWA 0.05 mg/m <sup>3</sup> as V <sub>2</sub> O <sub>5</sub>
Technical control measures:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Personal protection – respiratory:	Use suitable respirator when high concentrations are present.
Personal protection – hand:	Use suitable gloves when working with material.
Personal protection – eye:	Safety glasses. Tightly sealed goggles.
Personal protection – skin:	Full-face protection.
Other protection:	Protective work clothes.
9. PHYSICAL AND CHEMICAL PROPERTIES	
Appearance:	Whitish / Yellow Powder.
Odour:	Not determined.
pH:	Not applicable.
Boiling point:	1750°C
Melting point:	Decomposes rapidly above 200°C.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES (CONTINUE)

Flash point:	656°C
Flammability:	Not flammable.
Auto-flammability:	Not flammable.
Explosive properties:	Product does not present an explosion hazard.
Oxidising properties:	None
Vapour pressure:	Not determined (decomposes at 100°C and release NH3 gas).
Density @ 20oC:	2.44g/cm <sup>3</sup>
Solubility – water:	Miscibility with water at 15°C – 5.2g/l.
Solubility – solvent:	Will dissolve in high pH liquids.
Solubility – coefficient:	Not applicable.
Neurotoxicity:	Not applicable.

## 10. STABILITY AND REACTIVITY

Conditions to avoid:	Decompose at 100°C and release NH3 gas
Incompatible materials:	Oxidising agents. Acids Water/moisture – hygroscopic.
Hazardous decomposition products:	Nitrogen oxides Ammonia

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity:	LD/Lc50 values that are relevant for classification: Oral: LD50: 25mg/kg (mus) LD50: 58mg/kg (rat) Dermal: LD50 2102mg/kg (rat) Inhalative: LD50/4H 7.8mg/m <sup>3</sup> / 4H (rat)
Skin and eye contact:	Serious irritating effect. Irritant to skin and mucous membranes. No sensitising effect known.
Chronic toxicity:	Not fully known.
Carcinogenicity:	The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product. No classification data on carcinogenic properties of this material is available from EPA, IARC, NPT, OSHA or ACGIH.
Sub-acute to chronic toxicity:	Vanadium compounds act chiefly as an irritant to the eyes and respiratory tract. Exposure may cause conjunctivitis, rhinitis and reversible irritation of the respiratory tract. More severe cases may cause bronchitis, bronchospasms and asthma like diseases. May cause polycythemia, red blood cells destruction and anaemia, albuminuria and hematuria, gastrointestinal disorders, nervous complaints and severe cough.

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11. TOXICOLOGICAL INFORMATION (CONTINUE)	
Mutagenicity:	-
Reproductive hazards:	-
Additional toxicological information:	The acute and chronic toxicity of this substance is not fully known.
12. ECOLOGICAL INFORMATION	
Aquatic toxicity – fish:	Poisonous to living organisms.
Aquatic toxicity – daphnia:	Not known.
Aquatic toxicity – algae:	Not known.
Biodegradability:	Not known.
Bio-accumulation:	Not known.
Mobility:	Not known.
German wgk:	Not known.
13. DISPOSAL CONSIDERATIONS	
Disposal methods:	Consult state, local or national regulations for proper disposal.
Disposal of packaging:	Consult state, local or national regulations for proper disposal.
14. TRANSPORT INFORMATION	
UN No:	2859
Substance identity no:	AMV
ADR/RID class:	6.1
ADR/RID item no:	58b
ADR/RID hazard identity no:	
IMDG – shipping name:	Ammonium metavanadate
IMDG – class:	6.1
IMDG – packaging group:	II
IMDG – marine pollutant:	
IMDG – EMS no:	
IMDG – MFAG table no:	
IATA – shipping name:	Ammonium metavanadate
IATA – class:	6.1
IATA – subsidiary risk(s):	
ADNR – class:	
UK – description:	
UK – emergency action class:	
UK – classification:	
Tremcard no:	

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### 15. REGULATORY INFORMATION

EEC hazard classification:

Harmful by inhalation.

Risk phases:

Toxic if swallowed.

Irritating to eyes, respiratory system and skin.

Safety phases:

Keep container in well-ventilated place.

When using do not eat or drink.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

After contact with skin, wash immediately with plenty of water.

Wear suitable protective clothing, gloves and eye/face protection.

In case of accident or if you feel unwell, seek medical advice immediately.

National legislation:

### 16. OTHER INFORMATION

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, **NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.**