

according to Regulation (EC) No. 1907/2006

Creation Date 08-Nov-2010 Revision Date 08-Feb-2024 Revision Number 4

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product Description: <u>Ammonium vanadium oxide</u>

Cat No. : 36213

**Synonyms** Ammonium vanadate, meta

 CAS No
 7803-55-6

 EC No
 232-261-3

 Molecular Formula
 H4 N O3 V

REACH registration number -

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

## 1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH

Erlenbachweg 2, 76870 Kandel, Germany

Tel: +49 (0) 721 84007 280 Fax: +49 (0) 721 84007 300

**Swiss distributor -** Fisher Scientific AG Neuhofstrasse 11, CH 4153 Reinach

Tel: +41 (0) 56 618 41 11

https://www.fishersci.ch/ch/en/customer-help-

support/forms/email-us.html

**E-mail address** begel.sdsdesk@thermofisher.com

#### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:

Tox Info Suisse Emergency Number: 145 (24hr)

Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)

Chemtrec (24h) Toll-Free: 0800 564 402 Chemtrec Local: +41-43 508 20 11 (Zurich)

## **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

\_\_\_\_\_

#### Ammonium vanadium oxide

Revision Date 08-Feb-2024

#### CLP Classification - Regulation (EC) No 1272/2008

#### **Physical hazards**

Based on available data, the classification criteria are not met

#### **Health hazards**

Acute oral toxicity

Acute Inhalation Toxicity - Dusts and Mists

Serious Eye Damage/Eye Irritation

Reproductive Toxicity

Specific target organ toxicity - (repeated exposure)

Category 3 (H301)

Category 4 (H332)

Category 2 (H319)

Category 2 (H361d)

Category 1 (H372)

#### **Environmental hazards**

Chronic aquatic toxicity Category 2 (H411)

Full text of Hazard Statements: see section 16

#### 2.2. Label elements



#### Signal Word

Danger

#### **Hazard Statements**

H301 - Toxic if swallowed

H332 - Harmful if inhaled

H319 - Causes serious eye irritation

H372 - Causes damage to organs through prolonged or repeated exposure

H361d - Suspected of damaging the unborn child

H411 - Toxic to aquatic life with long lasting effects

## **Precautionary Statements**

P264 - Wash face, hands and any exposed skin thoroughly after handling

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P337 + P313 - If eye irritation persists: Get medical advice/attention

P280 - Wear protective gloves/protective clothing/eye protection/face protection

#### 2.3. Other hazards

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.1. Substances

Ammonium vanadium oxide

Component CAS No EC No Weight % CLP Classification - Regulation (EC) No 1272/2008 Ammonium vanadate 7803-55-6 232-261-3 >95 STOT RE 1 (H372) Repr. 2 (H361d) Eye Irrit. 2 (H319) Acute Tox. 3 (H301) Acute Tox. 4 (H332) Aquatic Chronic 2 (H411)

REACH registration number	
---------------------------	--

Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

#### 4.1. Description of first aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Eye Contact In the case of contact with eyes, rinse immediately with plenty of water and seek medical

advice.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth

method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Immediate medical attention is required.

**Self-Protection of the First Aider** Use personal protective equipment as required.

## 4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

### 4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

## 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

## **Hazardous Combustion Products**

Revision Date 08-Feb-2024

#### Ammonium vanadium oxide

Revision Date 08-Feb-2024

Ammonia, Nitrogen oxides (NOx), Heavy metal oxides.

#### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid dust formation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

#### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

#### 6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

#### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

#### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

**Technical Rules for Hazardous Substances (TRGS) 510** 

Storage Class (LGK) (Germany)

Storage Class/LGK 6.1D

Switzerland - Storage of hazardous substances Storage class - SC 6.1

https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

#### 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### 8.1. Control parameters

#### **Exposure limits**

List source(s):

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Ammonium vanadate	Skin notation MAC: 0.1 mg/m <sup>3</sup>				

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### **Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry

MDHS 99 Metals in air by ICP-AES

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

## **Predicted No Effect Concentration (PNEC)**

No information available.

#### 8.2. Exposure controls

### **Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material Natural rubber Nitrile rubber	Breakthrough time See manufacturers recommendations	Glove thickness	<b>EU standard</b> EN 374	Glove comments (minimum requirement)
Neoprene PVC				

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Ammonium vanadium oxide Revision Date 08-Feb-2024

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

> are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure Small scale/Laboratory use

limits are exceeded or if irritation or other symptoms are experienced.

Solid

Solid

Method - No information available

Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Prevent product from entering drains. Do not allow material to contaminate ground water **Environmental exposure controls** 

system.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information on basic physical and chemical properties

**Physical State** Solid

**Appearance** Light green Odorless Odor

**Odor Threshold** No data available 200 °C / 392 °F Melting Point/Range No data available **Softening Point Boiling Point/Range** No information available

Flammability (liquid) Not applicable

No information available Flammability (solid,gas) No data available **Explosion Limits** 

**Flash Point** No information available

**Autoignition Temperature** No data available **Decomposition Temperature** No data available

Ha No information available

5.1 g/L (20°C) **Water Solubility** 

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

**Vapor Pressure** No data available **Density / Specific Gravity** No data available **Bulk Density** No data available **Vapor Density** Not applicable

Solid Particle characteristics No data available

Not applicable

9.2. Other information

**Viscosity** 

**Molecular Formula** H4 N O3 V **Molecular Weight** 116.98

**Evaporation Rate** Not applicable - Solid

## **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity None known, based on information available

10.2. Chemical stability

Stable under normal conditions. Moisture sensitive.

Ammonium vanadium oxide Revision Date 08-Feb-2024

10.3. Possibility of hazardous reactions

Hazardous polymerization does not occur. **Hazardous Polymerization** 

**Hazardous Reactions** None under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Excess heat. Exposure to moisture.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Ammonia. Nitrogen oxides (NOx). Heavy metal oxides.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### **Product Information**

(a) acute toxicity;

Oral Category 3

**Dermal** Based on available data, the classification criteria are not met

Inhalation Category 4

	Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ī	Ammonium vanadate	LD50 = 58100 μg/kg (Rat)	LD50 = 2102 mg/kg (Rat)	7800 μg/m³ (Rat) 4 h
				2.5 mg/L ( Rat ) 4h

No data available (b) skin corrosion/irritation;

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory No data available No data available Skin

No data available (e) germ cell mutagenicity;

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

Category 2 (g) reproductive toxicity;

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental effects have occurred in experimental animals. **Developmental Effects Teratogenicity** 

Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 1

Respiratory system, Eyes, Skin, Liver, Kidney. **Target Organs** 

(j) aspiration hazard; Not applicable

Ammonium vanadium oxide Revision Date 08-Feb-2024

Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects,both acute and No information available.

delayed

11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any

known or suspected endocrine disruptors.

## **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity **Ecotoxicity effects** 

The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Ammonium vanadate	Ictalrus catus: LC50=2.6 mg/L		
	96h		

12.2. Persistence and degradability Product contains heavy metals. Discharge into the environment must be avoided. Special

pre-treatment is necessary

**Persistence** based on information available. May persist. Degradability Not relevant for inorganic substances.

Degradation in sewage

Contains substances known to be hazardous to the environment or not degradable in waste treatment plant

water treatment plants.

12.3. Bioaccumulative potential May have some potential to bioaccumulate

12.4. Mobility in soil The product is water soluble, and may spread in water systems. Will likely be mobile in the

environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB

assessment

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not

require assessment.

12.6. Endocrine disrupting

properties

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

**Persistent Organic Pollutant** This product does not contain any known or suspected substance **Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

Waste from Residues/Unused **Products** 

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Ammonium vanadium oxide Revision Date 08-Feb-2024

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Do not empty into drains. Do not let this

chemical enter the environment.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and

regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance,

ADWO) SR 814.600

https://www.fedlex.admin.ch/eli/cc/2015/891/en

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN2859

14.2. UN proper shipping name AMMONIUM METAVANADATE

14.3. Transport hazard class(es) 6.1 14.4. Packing group II

#### **ADR**

**14.1. UN number** UN2859

14.2. UN proper shipping name AMMONIUM METAVANADATE

14.3. Transport hazard class(es) 6.1 14.4. Packing group II

## <u>IATA</u>

**14.1. UN number** UN2859

14.2. UN proper shipping name AMMONIUM METAVANADATE

14.3. Transport hazard class(es) 6.1 14.4. Packing group II

**14.5. Environmental hazards** Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

## **SECTION 15: REGULATORY INFORMATION**

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Ammonium vanadate	7803-55-6	232-261-3	i	-	Х	X	KE-01756	Χ	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Ammonium vanadate	7803-55-6	Х	ACTIVE	Х	-	Х	Х	Х

Ammonium vanadium oxide Revision Date 08-Feb-2024

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

#### Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) -	REACH (1907/2006) -	REACH Regulation (EC
		Annex XIV - Substances	Annex XVII - Restrictions	1907/2006) article 59 -
		Subject to Authorization	on Certain Dangerous	Candidate List of
			Substances	Substances of Very High
				Concern (SVHC)
Ammonium vanadate	7803-55-6	-	Use restricted. See item	-
			65.	
			(see link for restriction	
			details)	

#### **REACH links**

https://echa.europa.eu/substances-restricted-under-reach

#### Seveso III Directive (2012/18/EC)

Component			Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident Notification	Qualifying Quantities for Safety Report Requirements
Ammonium vanadate	7803-55-6	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

## **National Regulations**

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

	Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
I	Ammonium vanadate	WGK3	

#### **Swiss Regulations**

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

substances preparation (SR 814.81)		Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Ammonium vanadate Prohibited and Restricted Substances			

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## **SECTION 16: OTHER INFORMATION**

#### Full text of H-Statements referred to under sections 2 and 3

H301 - Toxic if swallowed

H332 - Harmful if inhaled

H361d - Suspected of damaging the unborn child

H319 - Causes serious eye irritation

H372 - Causes damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

#### Legend

**CAS** - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances **IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Training Advice** 

Chemical incident response training.

**Prepared By** Health, Safety and Environmental Department

**Creation Date** 08-Nov-2010 **Revision Date** 08-Feb-2024

**Revision Summary** New emergency telephone response service provider.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

Substances List

**ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air **Transport Association** 

MARPOL - International Convention for the Prevention of Pollution from

Ships

ATE - Acute Toxicity Estimate VOC - (volatile organic compound)

Revision Date 08-Feb-2024

## **End of Safety Data Sheet**