Ammonium Metavanadate

Safety Data Sheet

According to the UN GHS revision 9

SECTION 1: GHS Product identifier

1.1. Identification

Product name: Ammonium metavanadate

1.2. Other means of identification

Product number : -

Other names : azanium,oxido(dioxo)vanadium

1.3. Recommended use of the chemical and restrictions on use

Identified uses : Industrial and scientific research use.

Uses advised against : no data available

1.4. Supplier's details

Anhui Fitech Material Co.,Ltd

National Innovation Industrial Base, Huguang Road, Shushan District, Hefei, Anhui, China

Tel: +86-551-65566870

Emergency phone number: +86-551-65566870

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

Acute toxicity - Oral, Category 3

Eye irritation, Category 2

Acute toxicity - Inhalation, Category 4

Reproductive toxicity, Category 2

Specific target organ toxicity -repeated exposure, Category 1

Hazardous to the aquatic environment, long-term (Chronic) -Category Chronic 2

2.2. GHS label elements, including precautionary statements

Pictogram(s) :

Signal word : Danger

Hazard statement(s) : H301 Toxic if swallowed
H319 Causes serious eye irritation
H332 Harmful if inhaled
H361 Suspected of damaging fertility or the unborn child
H372 Causes damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)
Prevention : P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.

Response	: P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor P321 Specific treatment (see ... on this label). P330 Rinse mouth. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 Call a POISON CENTER/doctor/\u2026if you feel unwell. P308+P313 IF exposed or concerned: Get medical advice/ attention. P314 Get medical advice/attention if you feel unwell. P391 Collect spillage.
Storage	: P405 Store locked up.
Disposal	: P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal

2.3. Other hazards which do not result in classification

None

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical Name	CAS number	EC number	Concentration
Ammonium metavanadate	7803-55-6	232-261-3	100%

SECTION 4: First aid measures

4.1. Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Never give anything by mouth to an unconscious person.Rinse mouth with water.Consult a physician.

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

Excerpt from ERG Guide 154 (Substances - Toxic and/or Corosive Non-Combustible): TOXIC • inhalation.imgestion or skin contact withmaterial may cause severe mjury or deathContact with molten substance may cause severe burs to skin and eyes.Avoid amy skin contact. Effectsof contact or imhalation may be delayed. Fire may produce irritating,corrosive and/or toxic gases. Runof from fire control or dilution water maybe corrosive and/or toxic and cause pollution.(ERG,2016)

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

Immediate first aid: Ensure that adequate decontamimation has been carried out. If patient is not breathing,start artifical respiration. preferablymith a demand valve resuscitator.bag-valve-mask device. 0r pocket mask. as traimed.Pertorm CPR if necessary. Immnedhately flush contamimate(eyes wit gently flowimng water.Do not duce vomiting. If vomting occurs. lean patrent forward or place on the let side (head-doum position.possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attentionPoisons A and B.

SECTION 5: Firefighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media: Use extingurshing measures that are appropriate to local crcumstances and the surounding envronment

5.2. Specific hazards arising from the chemical

Excerpt from ERG Guide 154(Substances - Toxic and/or Corrosive (Non-Cormbustible): Non-combustible, substance itself does not bumn but maydecompose upon heating to produce corrosive and or toxic fumes. Somne are oxidizers and may ignte comibustibles (wood, paper, ol, clothingetc.). Contact with metals may evolve flammable hydrogen gas.Containers may explode when heated. For electric vehicles or equipment,ERCGuide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted.(ERG.2016)

5.3. Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours.Avoid contacting with skin and eye. Use personal protective equipmrent Wear chemical impermeable gloves.Ensure adequate ventilation Remove all sources of ignition. Evacuate personnel to safe areas Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Wear respiratory protection.Avod dust formaton. Avod breathing vapors, mist or gas. Ensure adequate ventlation.Evacuate personnel to sate areas. Avod breathing cust Environmental precautions: Prevent further leakage or spllage if safe to do so. Do not let product enter draims. Methods and materals forcontainment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handlimg im a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Moisture sensitive. Keep in a dry place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component	Ammonium Trioxovanadate
CAS No.	7803-55-6
	Recommended Exposure Limit: 15 Minute Ceiling value: 0.05 mg V/cu m. /anadium dust; The REL applies to all vanadium compounds except vanadium metal and vanadium carbide/

Biological limit values

no data available

8.2. Appropriate engineering controls

Ensure adequate ventilation.Hadle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area

8.3. Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US)

Skin protection

Wear fire flame resistant and imperious clothing. Handle with gloves.Gloves must be imspected prior to use. Wash and dry hands.The selectedprotective gloves have to satisfy the specifications of EU Directive 89/686 /EEC and the standard EN 374 derived from it

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

9.1. Information on basic physical and chemical properties

Physical state	Solid. Crystalline.
Colour	Colourless to white, yellowish
Odour	no data available
Melting point/freezing point	690°C
Boiling point or initial boiling point and boiling range	210°C
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	<7.0 in aqueous solution (acts as an acid to neutralize bases)
Kinematic viscosity	no data available
Solubility	Miscible with water
Partition coefficient n-octanolwater	no data available
Vapour pressure	no data available
Density and/or relative density	2.32.Temperature: 20°C
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Slightly soluble in water.

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

NonflammableAcidic inorganic salts, such as AMONUM METAVANADATE. are generally soluble im water.The resulting solutions contatmoderate concentrations of hydrogen ions and have pH's of less than 7.0. They react as acids to neutralize bases.These neutralizations generateheat but less or far less than is generated by neutralization of imorganic acids.imorganic oxoacids,and carboxylic acid. Ammonium metavamadateis a weak oxidizing agent, and may react with strong or weak reducing agents to generate heat and products that may be flammable, combustible.or otherwise reactive

10.4. Conditions to avoid

no data available

10.5. Incompatible materials

Incompatible materials: Strong acids and oxidizing agents.

10.6. Hazardous decomposition products

When heated to decompostion it emits toxic fumes of/ammonia, vanadium, and nitrogen oxides.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male) - 218.1 g/kg bw. Remarks:LD50 after 14 days; Slope: 14.98

Inhalation: LC50 - rat (male) - 2.61 mg/L air (analytical).

Dermal: LD50 - rat (male) -> 2 500 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish: LC50 - Leuciscus idus - 693 ug/L - 96 h Remarks:V.

Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 1 520 ug/L - 48 h Remarks:V.

Toxicity to algae: EC50 -Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 2 907 ug/L - 72 h

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage -> 100 mg/L - 3 h. Remarks:V)

12.2. Persistence and degradability

no data available

12.3. Bioaccumulative potential

no data available

12.4. Mobility in soil

Log Kd values for ammonium vanadate determined in 11 soils from 10 soil orders were as follows():Log Kd Soil type Soil characteristics Stateof origin 2.152 A1ligator pH 4.8. 1.54% TOC. 5.9% sand, 39.4% silt, 54.7% clay Louisiama 1.035 Calciorthid pH 8.5,0.44% TOC,70.0% sand，19.3% silt 10.7% clay New Mexico 1.599 Cecil pH 5.7,0.61% TOC, 78.8% sand, 12.9% silt, 8.3% clay South Carolima 3.347 Kula pH 5.96.62% TOC,73.7% sand,25.4% silt, 0.9% clay Hawa 2.012 Lafite pH 3.9, 11.6% TOC, 60.7% sand,21.7% silt 17.6% clay Louisiana 2.703Molokai pH 6.0, 1.67% TOC,25.7% sand, 46.2% silt, 28.2% clay Hawail 1.270 Norwood pH 6.9,0.21% TOC,79.2% sand, 18.1% silt, 2.8% clayLouisiana 1.960 0livier pH 6.6,0.83% TOC, 4.4% sand, 89.% silt, 6.2% clay Louisiana 1.958 Spodosol pH 4.3, 1.98% TOC,90.2% sand, 6.0%silt 3.8% clay Florida 1.907 Webster H 7.6.4.39% TOC.27 .5% sand. 48.6% sit 23.9% clav owa 2184 Windsor H 5 3,2.03% TOC,76.8%sand20.5% silt28% clav New Hampshire

12.5. Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1. Disposal methods

Product

The material can be disposed ofby removal to a licensed chemical destruction plant or by controlled incineration with filue gas scrubbing.Do notcontaminate water. foodstuffs. feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be trinly rimsed or equvalent) and offered for recvclimg or reconditioning. Altemnatively, the packaping can be punctured to makeit unusable for other purposes and then be disposed of in a sanitary landfl1. Controlled imcineration with flue gas scrubbing is possible forcombustible packaging materials.

SECTION 14: Transport information

14.1. UN Number

ADR/RID:UN2859 (For reference only, please check.)

IMDG: UN2859 (For reference only, please check.)

IATA: UN2859 (For reference only, please check.)

14.2. UN Proper Shipping Name

ADRRID:AMMONIUM METAVANADATE

(For reference only,please check.)

IMDG: AMMONIUM METAVANADATE (For reference only,please check.)

IATA: AMMONIUM METAVANADATE

(For reference only.please check.)

14.3. Transport hazard class(es)

ADR/RID: 6.1

(For reference only, please check)

IMDG: 6.1

(For reference only, please check)

1ATA: 6.1

(For reference only, please check)

14.4. Packing group,if applicable

ADR/RID: II

(For reference only, please check)

IMDG: II

(For reference only, please check)

IATA: II (For reference only, please check)

14.5. Environmental hazards

ADRRID: Yes

IMDG: Yes

IATA: Yes

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Chemicalname	Common names and synonyms	CAS number	EC number
Ammonium metavanadate	Ammonium metavanadate	7803-55-6	232-261-3

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances ControlAct (TSCA) nventory	Listed.
China Catalog ofHazardous chemicals 2015	Listed.
New Zealand Inventorv of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List(KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date October 18,2022

Revision Date October 18,2022

Abbreviations and acronyms

CAS- Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage ofDangerous Goods by Rail

IMDG:International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limitLC50: Lethal Concentration 50%

LD50: Letha1 Dose 50%

EC50: Effective Concentration 50%

References

IPCS -The International Chemical Safety Cards (ICSC). website: http://www.ilo.org/dyn/icsc/showcard home.

HSDBHazardous Substances Data Bank. website: https://toxnet.nlmnih.gov/newtoxnet/hsdb.htm

IARC -International Agency for Research on Cancer, website: http://www.iarc.fr/0

eChemPortal - The Global Potal to nformation on Chemical Substances by 0ECD. website: htp:/www.echemportal.org echemportal/index'pageID=0&request locale=en

CAMEO Chemicalswebsite: http://cameochemicals.noaagov/search/simple

ChemIDplus.website: http://chemsisnmnihgov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http:/www,phmsa.dot.gov/hazmat library/erg9

Germany GESTIS-database on hazard substance. website: http://www.dguv.de/ifa gestis gestis-stoffdatenbank/index-2.jsp

ECHA- European Chemicals Agencywebsite https://echa.europa.eu

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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