

Safety Data Sheet

1. Identification

1.1. Product identifier

Product Identity Potassium Metavanadate Solution
Alternate Names KMV Solution

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

Intended use See Technical Data Sheet.
Application Method See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name: U.S. Vanadium, LLC
4285 Malvern Road
Hot Springs, Arkansas 71901; U.S.A
(Company Identification)
Telephone: +1-501-262-1270
Fax: +1-501-262-2793
Website:

Emergency

24 hour Emergency Telephone No. NATIONAL RESPONSE CENTER: +1-800-424-8802
CHEMTREC U.S. and CANADA: +1-800-424-9300
CHEMTREC International: +1-202-483-7616 (Collect)

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Acute Tox. 2;H300	Fatal if swallowed.
Acute Tox. 4;H332	Harmful if inhaled.
Eye Irrit. 2;H319	Causes serious eye irritation.
Repr. 2;H361	Suspected of damaging fertility or the unborn child.
STOT RE 1;H372	Causes damage to organs through prolonged or repeated exposure. Specific Target Organs: (Respiratory Tract)

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.



Signal Word: Danger

Hazard Statements:

H300 Fatal if swallowed.
H315 Causes skin irritation.
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 Statements:

[Prevention]:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

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- P261 Avoid breathing dust / fume / gas / mist / vapors / spray.
 P264 Wash thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P273 Avoid Release to the Environment.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves / eye protection / face protection.

[Response]:

- P301+312 IF SWALLOWED: Call a POISON CENTER or doctor / physician if you feel unwell.
 P304+312 IF INHALED: Call a POISON CENTER or doctor / physician if you feel unwell.
 P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
 P308+313 IF exposed or concerned: Get medical advice / attention.
 P314 Get Medical advice / attention if you feel unwell.
 P330 Rinse mouth.
 P337+313 If eye irritation persists: Get medical advice / attention.
 P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.

[Storage]:

- P405 Store locked up.

[Disposal]:

- P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Potassium metavanadate CAS Number: 0013769-43-2	<26%	Acute Tox. 2;H300 Eye Irrit. 2;H319 Acute Tox. 4;H332 Repr. 2 (Oral, Developmental Toxin);H361 STOT RE 1 (Respiratory Tract, Inhalation);H372 Aquatic Chronic 2;H411	[1]

4. First aid measures

4.1. Description of first aid measures

- General** In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
- Inhalation** Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
- Eyes** Flush with water 15 minutes to remove particles. See an ophthalmologist.
- Skin** Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
- Ingestion** If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

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

- Overview** **Inhalation:** Irritating to respiratory system.
Skin Contact: Irritating to eyes.
Skin Contact: Irritation with burning, reddening, and itching.
Ingestion: Harmful if swallowed. See section 2 for further details.
- Inhalation** Harmful if inhaled.
- Eyes** Causes serious eye irritation.
- Ingestion** Fatal if swallowed.

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5. Fire-fighting measures

5.1. Extinguishing media

Not flammable. Use media suitable for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: When heated to decomposition it emits toxic fumes of VOx.

Avoid breathing dust / fume / gas / mist / vapors / spray.

5.3. Advice for fire-fighters

Self-contained respirator and impervious suit.

Avoid creating dust.

ERG Guide No. 151

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Skin, eye, and respiratory protection.

Prevent entering sewage systems or surface water.

Dispose of in accordance with applicable environmental rules.

7. Handling and storage

7.1. Precautions for safe handling

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handling: Keep container tightly sealed in cool conditions. Open and handle container with care.

Storage: Store in an area with restricted access. Ensure good ventilation at the workplace.

Incompatible materials: No data available.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters
Exposure

CAS No.	Ingredient	Source	Value
0013769-43-2	Potassium metavanadate solution	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

No specific PEL for potassium metavanadate. Exposure data applies as noted, from DPIM, 10th Edition:

0.05 mg/m³ for V₂O₅ respirable dust or fume (ACGIH TLV TWA)

0.05 mg V/m³ for vanadium compounds, 15 minutes (NIOSH REL)

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Carcinogen Data

CAS No.	Ingredient	Source	Value
0013769-43-2	Potassium metavanadate solution	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory	Use respirators approved by NIOSH/MSHA.
Eyes	Use approved eye protection.
Skin	Appropriate impervious clothing should be worn. Use appropriate rubber gloves.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Light Straw-Colored Solution
Odor	None
Odor threshold	Not determined
pH	~ 11
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	Not Measured
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (Pa)	Not Measured
Vapor Density	Not Measured
Specific Gravity	1.5 g/ml
Solubility in Water	Not Applicable
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

No data available.

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10.6. Hazardous decomposition products

When heated to decomposition it emits toxic fumes of VOx.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Potassium metavanadate solution - (13769-43-2)	10 mg/kg (rat)	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	2	Fatal if swallowed.
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	4	Harmful if inhaled.
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	2	Suspected of damaging fertility or the unborn child.
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	1	Causes damage to organs through prolonged or repeated exposure. (Respiratory Tract)
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Potassium metavanadate solution - (13769-43-2)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

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13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	UN2864	UN2864	UN2864
14.2. UN proper shipping name	UN2864, Potassium metavanadate solution, 6.1, II	Potassium metavanadate solution	Potassium metavanadate solution
14.3. Transport hazard class(es)	DOT Hazard Class: 6.1	IMDG: 6.1 Sub Class: Not Applicable	Air Class: 6.1
14.4. Packing group	II	II	II
14.5. Environmental hazards			
IMDG	Marine Pollutant: No		
14.6. Special precautions for user			
	No further information		

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification D2A

US EPA Tier II Hazards

Fire: No
Sudden Release of Pressure: No
Reactive: No
Immediate (Acute): Yes
Delayed (Chronic): Yes

EPCRA 311/312 Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Potassium metavanadate solution

Pennsylvania RTK Substances (>1%) :

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and

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safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H300 Fatal if swallowed.

H315 Causes skin irritation.

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.

Listings of changes from previous versions in other formats are not applicable.

U.S. Vanadium, LLC believes that the data on this sheet are correct as of the effective date and that the opinions given reflect those of qualified experts. Since U.S. Vanadium, LLC cannot control the product or its use, it is the user's responsibility to use the product safely. The data on this sheet apply only to products sold by corporate subsidiaries of U.S. Vanadium, LLC and may not apply to products sold by others.

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