

Vanadate-Molybdate Reagent

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 11/29/2018

Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixtures
 Product name : Vanadate-Molybdate Reagent
 Product code : LC26600
 Product group : Blend

1.2. Recommended use and restrictions on use

Recommended use : Laboratory chemicals
 Restrictions on use : Not for food, drug or household use

1.3. Supplier

Supplier

LabChem Inc
 Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe
 Court
 16063 Zelienople, PA - USA
 T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

Supplier

LabChem, Inc.
 4601, boul. des Grandes Prairies
 H1R 1A5 Montreal - Canada
 T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com



1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or +1-703-741-5970

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Skin corrosion/irritation, Category 1B H314
 Serious eye damage/eye irritation, Category 1 H318

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

Hazard pictograms (GHS CA) :



Signal word (GHS CA) : Danger

Hazard statements (GHS CA) : H314 - Causes severe skin burns and eye damage.

Precautionary statements (GHS CA) : P260 - Do not breathe mist, vapours, spray.
 P264 - Wash exposed skin thoroughly after handling.
 P280 - Wear protective gloves, protective clothing, eye protection, face protection.
 P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
 P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.
 Rinse skin with water or shower.
 P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove
 contact lenses, if present and easy to do. Continue rinsing.
 P310 - Immediately call a POISON CENTER or doctor.
 P363 - Wash contaminated clothing before reuse.
 P405 - Store locked up.
 P501 - Dispose of contents/container to comply with local, regional, national and international
 regulations

2.3. Other hazards

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS CA)

No data available

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SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Water		(CAS-No.) 7732-18-5	83,71	Not classified
Hydrochloric Acid, 37% w/w	acid clorhidric, conc.=37%, soluție apoasă / acide chlorhydrique, conc=37%, solution aqueuse / ácido clorhidrico, conc=37%, solución acuosa / acido cloridrico, conc=37%, soluzione acquosa / ácido hidroclicorico, conc=37%, solução aquosa / Chlorwasserstoffsäure, Konz=37%, wässrige Lösung / hydrochloric acid, conc=37%, aqueous solution / hydrogenklorid, konc=37%, vattning lösning / kloorivetyhappo, kons=37%, vesiliuos / saltsyre, konc=37%, vandig opløsning / Salzsäure, Konz=37%, wässrige Lösung	(CAS-No.) 7647-01-0	13,66	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402
Ammonium Molybdate Tetrahydrate		(CAS-No.) 12054-85-2	2,5	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Ammonium Metavanadate		(CAS-No.) 7803-55-6	0,13	Acute Tox. 3 (Oral), H301

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER/doctor.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.
First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: Possible inflammation of the respiratory tract.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea.
Chronic symptoms	: Affection/discolouration of the teeth.
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

4.3. Immediate medical attention and special treatment, if necessary

Treatment	: Obtain medical assistance.
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SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
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5.2. Unsuitable extinguishing media

Unsuitable extinguishing media	: Do not use a heavy water stream.
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5.3. Specific hazards arising from the hazardous product

Fire hazard	: Not flammable.
Explosion hazard	: Not applicable.
Reactivity	: Thermal decomposition generates : Corrosive vapours. Thermal decomposition generates : Corrosive vapours.

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5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Not applicable.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Try to stop release. Dike and contain spill.
Personal Precautions, Protective Equipment and Emergency Procedures	: Chemical goggles or safety glasses.

6.2. Methods and materials for containment and cleaning up

For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe mist, vapours, spray.
Local and general ventilation	: Ensure adequate ventilation, especially in confined areas.
Hygiene measures	: Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations.
Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container closed when not in use.
Incompatible products	: metals. cyanides. Strong bases. Strong acids.
Incompatible materials	: Direct sunlight.
Packaging materials	: Do not store in corrodable metal.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hydrochloric Acid, 37% w/w (7647-01-0)		
USA - ACGIH	ACGIH Ceiling (mg/m ³)	2,98 mg/m ³
USA - ACGIH	ACGIH Ceiling (ppm)	2 ppm
USA - OSHA	OSHA PEL (Ceiling) (mg/m ³)	7 mg/m ³
USA - OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
Canada (Quebec)	PLAFOND (mg/m ³)	2,98 mg/m ³
Canada (Quebec)	PLAFOND (ppm)	2 ppm
Alberta	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Alberta	OEL Ceiling (ppm)	2 ppm
British Columbia	OEL Ceiling (mg/m ³)	2,98 mg/m ³
British Columbia	OEL Ceiling (ppm)	2 ppm
Manitoba	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Manitoba	OEL Ceiling (ppm)	2 ppm
New Brunswick	OEL Ceiling (mg/m ³)	2,98 mg/m ³
New Brunswick	OEL Ceiling (ppm)	2 ppm
Newfoundland & Labrador	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Newfoundland & Labrador	OEL Ceiling (ppm)	2 ppm
Nova Scotia	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Nova Scotia	OEL Ceiling (ppm)	2 ppm
Nunavut	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Nunavut	OEL Ceiling (ppm)	2 ppm

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Hydrochloric Acid, 37% w/w (7647-01-0)		
Northwest Territories	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Northwest Territories	OEL Ceiling (ppm)	2 ppm
Ontario	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Ontario	OEL Ceiling (ppm)	2 ppm
Prince Edward Island	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Prince Edward Island	OEL Ceiling (ppm)	2 ppm
Saskatchewan	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Saskatchewan	OEL Ceiling (ppm)	2 ppm
Yukon	OEL Ceiling (mg/m ³)	2,98 mg/m ³
Yukon	OEL Ceiling (ppm)	2 ppm

Ammonium Molybdate Tetrahydrate (12054-85-2)		
USA - ACGIH	ACGIH TWA (mg/m ³)	0,5 mg/m ³

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Protective clothing. Gloves. Safety glasses. Face shield.

Hand protection:

Wear protective gloves.

Eye protection:

Chemical goggles or face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

High gas/vapour concentration: gas mask with filter type E

Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: No data available
Colour	: Yellow
Odour	: Odourless
Odour threshold	: No data available
pH	: ≤ 0,5
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.

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Vapour pressure	: No data available
Vapour pressure at 50 °C	: No data available
Relative density	: No data available
Density	: 1 - 1,1
Solubility	: Soluble in water.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Explosive properties	: Not applicable.
Oxidising properties	: None.
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	: Thermal decomposition generates : Corrosive vapours.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Reacts violently with (some) bases: release of heat.
Conditions to avoid	: Direct sunlight. Extremely high or low temperatures.
Incompatible materials	: metals. cyanides. Strong bases.
Hazardous decomposition products	: Hydrogen chloride. Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)	
LD50 oral rat	700 mg/kg
LD50 dermal rabbit	5010 mg/kg
Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg
Ammonium Metavanadate (7803-55-6)	
LD50 oral rat	160 mg/kg (Rat)
LD50 dermal rat	2102 mg/kg (Rat)

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: ≤ 0,5
Serious eye damage/irritation	: Causes serious eye damage. pH: ≤ 0,5
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Likely routes of exposure	: Skin and eyes contact.
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: Possible inflammation of the respiratory tract.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.

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Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea.
Chronic symptoms	: Affection/discolouration of the teeth.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)

LC50 fish 1	282 mg/l (96 h, <i>Gambusia affinis</i>)
EC50 Daphnia 1	< 56 mg/l (72 h, <i>Daphnia magna</i>)
Log Pow	0,25 (QSAR)

Ammonium Metavanadate (7803-55-6)

LC50 fish 1	2,9 - 5,3 mg/l (96 h, <i>Brachydanio rerio</i>)
EC50 Daphnia 1	1,52 mg/l (48 h, <i>Daphnia magna</i>)
EC50 72h algae (1)	4 mg/l (<i>Scenedesmus quadricauda</i>)

Ammonium Molybdate Tetrahydrate (12054-85-2)

LC50 fish 1	320 mg/l
LC50 fish 2	420
EC50 Daphnia 1	140 mg/l
ErC50 (algae)	41 mg/l

12.2. Persistence and degradability

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Persistence and degradability	Not established.
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Hydrochloric Acid, 37% w/w (7647-01-0)

Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Water (7732-18-5)

Persistence and degradability	Not established.
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Ammonium Molybdate Tetrahydrate (12054-85-2)

Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
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Hydrochloric Acid, 37% w/w (7647-01-0)

Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
Log Pow	0,25 (QSAR)

Water (7732-18-5)

Bioaccumulative potential	Not established.
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Ammonium Molybdate Tetrahydrate (12054-85-2)

Bioaccumulative potential	Not established.
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12.4. Mobility in soil

Hydrochloric Acid, 37% w/w (7647-01-0)

Ecology - soil	No (test) data on mobility of the components available. May be harmful to plant growth, blooming and fruit formation.
Log Pow	0,25 (QSAR)

Ammonium Metavanadate (7803-55-6)

Ecology - soil	Adsorbs into the soil.
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12.5. Other adverse effects

Ozone	: Not classified
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Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

Transportation of Dangerous Goods

UN-No. (TDG) : UN1789
Packing group : II - Medium Danger
TDG Primary Hazard Classes : 8 - Class 8 - Corrosives
Transport document description : UN1789 HYDROCHLORIC ACID, 8, II
Proper Shipping Name (Transportation of Dangerous Goods) : HYDROCHLORIC ACID

Hazard labels (TDG) : 8 - Corrosive substances



ERAP Index : 3 000
Explosive Limit and Limited Quantity Index : 1 L
Excepted quantities (TDG) : E2
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 1 L

14.2. Transport information/DOT

Department of Transport

DOT NA no. : UN1789
UN-No.(DOT) : 1789
Packing group (DOT) : II - Medium Danger
Transport document description : UN1789 Hydrochloric acid, 8, II
Proper Shipping Name (DOT) : Hydrochloric acid
Contains Statement Field Selection (DOT) :
Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Division (DOT) : 8
Hazard labels (DOT) : 8 - Corrosive



Dangerous for the environment : No

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DOT Special Provisions (49 CFR 172.102)	: A3 - For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packagings. A6 - For combination packagings, if plastic inner packagings are used, they must be packed in tightly closed metal receptacles before packing in outer packagings. B3 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized. B15 - Packagings must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. N41 - Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material. T8 - 4 178.274(d)(2) Normal..... Prohibited TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP12 - This material is considered highly corrosive to steel.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 154
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
Other information	: No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 1789
Proper Shipping Name (IMDG)	: HYDROCHLORIC ACID
Transport document description (IMDG)	: UN 1789 HYDROCHLORIC ACID, 8, II
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: II - substances presenting medium danger

IATA

UN-No. (IATA)	: 1789
Proper Shipping Name (IATA)	: Hydrochloric acid
Transport document description (IATA)	: UN 1789 Hydrochloric acid, 8, II
Class (IATA)	: 8 - Corrosives
Packing group (IATA)	: II - Medium Danger

SECTION 15: Regulatory information

15.1. National regulations

No additional information available

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

Ammonium Molybdate Tetrahydrate (12054-85-2)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Hydrochloric Acid, 37% w/w (7647-01-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonium Metavanadate (7803-55-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

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Ammonium Molybdate Tetrahydrate (12054-85-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SECTION 16: Other information

SDS Major/Minor : None
Date of issue : 11/29/2018
Other information : None.

Full text of H-statements:

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H402	Harmful to aquatic life

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