

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 1 of 10

## SAFETY DATA SHEET

### SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Permanganate Reagent**

Product Code(s) : R-0730

Recommended use of the chemical and restrictions on use

: Use as directed by manufacturer for purposes directly related to water testing.  
Recommended restrictions: None known.

Chemical family : Mixture.

Name, address, and telephone number  
of the supplier:

**Lowry & Associates, Div. of Chem-Aquascience,  
Inc.**

5-1151 Gorham Street  
Newmarket, ON, Canada  
L3Y 8Y1

Supplier's Telephone # : (905) 836-0505, Hours 09:00 to 16:30

**24 Hr. Emergency Tel #** : (613) 996-6666 (CANUTEC)

Name, address, and telephone number of  
the manufacturer:

Refer to supplier

### SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Purple liquid. Odorless.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification :

Oxidizing liquid -Category 2  
Serious eye damage/eye irritation - Category 2A  
Skin Corrosion/Irritation - Category 2  
Reproductive Toxicity - Category 2

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

Hazard statement(s)

May intensify fire; oxidizer.  
Causes skin irritation.  
Causes serious eye irritation.  
Suspected of damaging fertility or the unborn child.

**Permanganate Reagent**

R-0730

**SDS Preparation Date (mm/dd/yyyy): 02/28/2016**

Page 2 of 10

## SAFETY DATA SHEET

### Precautionary statement(s)

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Keep away from heat.  
 Keep/Store away from clothing and other combustible materials.  
 Take any precaution to avoid mixing with combustible materials.  
 Wash hands thoroughly after handling.  
 Wear protective gloves/clothing and eye/face protection.

If exposed or concerned: Call a POISON CENTER or doctor/physician.  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 If skin irritation occurs: Get medical advice/attention.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 If eye irritation persists: Get medical advice/attention.  
 In case of fire: Use water spray or fog to extinguish.

Store locked up.  
 Dispose of contents/container in accordance with local regulation.

### Other hazards

Other hazards which do not result in classification: Ingestion can cause gastrointestinal irritation, nausea, and diarrhea.

### Environmental precautions :

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not allow this material to drain into sewers/water supplies.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Potassium permanganate	Permanganic acid, potassium salt	7722-64-7	5.00

## SECTION 4. FIRST-AID MEASURES

### Description of first aid measures

- Ingestion* : Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Seek immediate medical attention/advice.
- Inhalation* : Immediately remove person to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Seek immediate medical attention/advice.
- Skin contact* : Wear appropriate protective equipment. Remove/Take off immediately all contaminated clothing. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Obtain medical attention immediately. Wash contaminated clothing before reuse. Contaminated leather may require disposal.
- Eye contact* : Wear appropriate protective equipment. Protect unharmed eye. If in contact with eyes, immediately flush eyes with running water for at least 20 minutes. If contact lens is present, DO NOT delay flushing or attempt to remove the lens until flushing is done. Obtain medical attention immediately.

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 3 of 10

## SAFETY DATA SHEET

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

- : Suspected of damaging fertility or the unborn child. Causes skin irritation. Symptoms may include redness, blistering, pain and swelling. Causes serious eye irritation. Symptoms may include redness, pain, tearing and conjunctivitis. May cause respiratory irritation. Symptoms may include sore throat, running nose and shortness of breath. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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

- : Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

### Extinguishing media

#### *Suitable extinguishing media*

- : Use flooding quantities of water to fight fires.

#### *Unsuitable extinguishing media*

- : Do not use carbon dioxides or other smothering agents, as they may be ineffective in fires involving oxidizers. Do not use water stream as it may scatter and spread fire.

### Special hazards arising from the substance or mixture / Conditions of flammability

- : May intensify fire; oxidizer. Contains oxidizers, which may increase the burning rate of combustible materials with flare-burning effect.

### Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

### Hazardous combustion products

- : Potassium oxides. ;Manganese oxides

### Special protective equipment and precautions for firefighters

#### *Protective equipment for fire-fighters*

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

#### *Special fire-fighting procedures*

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Use water to cool fire-exposed containers. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply or any natural waterway. Dike for water control.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

### Methods and material for containment and cleaning up

- : Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Dike for water control. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 4 of 10

## SAFETY DATA SHEET

### Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
- US CERCLA Reportable quantity (RQ): potassium permanganate (100 lbs / 45.4 kg)

### SECTION 7. HANDLING AND STORAGE

#### Precautions for safe handling

- : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/clothing and eye/face protection. Use only in well-ventilated areas. Avoid breathing mist or vapor. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from heat and flame. Keep away from incompatibles. Keep containers tightly closed when not in use.

- Conditions for safe storage** : Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks.

- Incompatible materials** : Combustible materials. ;Organic compounds.;Ammonium nitrate ;Acids ;Metals.

### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Limits:

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Potassium permanganate	0.2 mg/m3 (as Mn)	N/Av	5 mg/m3 (as Mn)	N/Av

#### Exposure controls

##### Ventilation and engineering measures

- : Use only in well-ventilated areas. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

##### Respiratory protection

- : Respiratory protection is required if the concentrations exceed the TLV. NIOSH-approved respirators are recommended. A self contained breathing apparatus should be used in emergency situations or instances where exposure levels are not known. Seek advice from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

##### Skin protection

- : Wear protective gloves/clothing. Advice should be sought from glove suppliers. Wear appropriate protective clothing to prevent skin contact, such as coveralls or long sleeved shirt, long pants, and shoes and socks.

##### Eye / face protection

- : Wear eye/face protection. Chemical safety glasses with side shields or splash proof goggles.

##### Other protective equipment

- : An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

##### General hygiene considerations

- : Avoid breathing mist or vapor. Do not ingest. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** : Purple liquid.

**Odour** : No odour.

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 5 of 10

## SAFETY DATA SHEET

**Odour threshold** : Not applicable.  
**pH** : 8.7  
**Melting/Freezing point** : Not available.  
**Initial boiling point and boiling range**  
: 100°C (212°F)  
**Flash point** : Not applicable.  
**Flashpoint (Method)** : Not applicable.  
**Evaporation rate (BuAe = 1)** : N/Av  
**Flammability (solid, gas)** : Not applicable.  
**Lower flammable limit (% by vol.)**  
: Not applicable.  
**Upper flammable limit (% by vol.)**  
: Not applicable.  
**Oxidizing properties** : None known.  
**Explosive properties** : Not explosive  
**Vapour pressure** : 17 mmHg  
**Vapour density** : 0.6  
**Relative density / Specific gravity**  
: 1.0  
**Solubility in water** : Very soluble  
**Other solubility(ies)** : Not available.  
**Partition coefficient: n-octanol/water or Coefficient of water/oil distribution**  
: N/Av  
**Auto-ignition temperature** : N/Av  
**Decomposition temperature** : Not available.  
**Viscosity** : N/Av  
**Volatiles (% by weight)** : 95%  
**Volatile organic Compounds (VOC's)**  
: N/Av  
**Absolute pressure of container**  
: N/Av  
**Flame projection length** : N/Av  
**Other physical/chemical comments**  
: None known or reported by the manufacturer.

### SECTION 10. STABILITY AND REACTIVITY

**Reactivity** : Not normally reactive.  
**Chemical stability** : Material is stable under normal conditions.  
**Possibility of hazardous reactions**  
: Hazardous polymerization does not occur.  
**Conditions to avoid** : Avoid heat and open flame. Keep away from incompatibles. Keep container tightly closed when not in use.  
**Incompatible materials** : Combustible materials. ;Organic compounds.;Ammonium nitrate ;Acids ;Metals.  
**Hazardous decomposition products**  
: None known, refer to hazardous combustion products in Section 5.

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 6 of 10

## SAFETY DATA SHEET

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure:

Routes of entry inhalation : YES

Routes of entry skin & eye : YES

Routes of entry Ingestion : YES

Routes of exposure skin absorption  
: NO

#### Potential Health Effects:

##### Signs and symptoms of short-term (acute) exposure

###### *Sign and symptoms Inhalation*

: May cause respiratory irritation. Symptoms may include sore throat, running nose and shortness of breath.

###### *Sign and symptoms ingestion*

: Ingestion can cause gastrointestinal irritation, nausea, and diarrhea.

###### *Sign and symptoms skin*

: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Skin Irritation - Category 2 Causes skin irritation. Symptoms may include redness and possibly blistering, if product is left on the skin.

###### *Sign and symptoms eyes*

: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Serious eye damage/eye irritation - Category 2A Causes serious eye irritation. Symptoms may include tearing, redness and discomfort.

##### Potential Chronic Health Effects

: Chronic skin contact with low concentrations may cause dermatitis.

##### Mutagenicity

: Not expected to be mutagenic in humans.

##### Carcinogenicity

: No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

##### Reproductive effects & Teratogenicity

: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Reproductive Toxicity - Category 2 Suspected of damaging fertility or the unborn child.

##### Sensitization to material

: Not expected to be a skin or respiratory sensitizer.

##### Specific target organ effects

: This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

##### Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

##### Synergistic materials

: Not available.

##### Toxicological data

: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data. See below for individual ingredient acute toxicity data.

Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 7 of 10

## SAFETY DATA SHEET

<u>Chemical name</u>	<u>LC<sub>50</sub>(4hr)</u> <u>inh. rat</u>	<u>LD<sub>50</sub></u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Potassium permanganate	N/Av	750 mg/kg	N/Av

### Other important toxicological hazards

: None known or reported by the manufacturer.

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity** : Very toxic to aquatic life with long lasting effects. Do not allow material to contaminate ground water system. See data for individual ingredient ecotoxicity data.

### Ecotoxicity data:

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Fish</u>		
		<u>LC50 / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Potassium permanganate	7722-64-7	0.47mg/L (Guppy)	N/Av	None.

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Daphnia</u>		
		<u>EC50 / 48h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Potassium permanganate	7722-64-7	0.06mg/L (Daphnia magna)	N/Av	10

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Algae</u>		
		<u>EC50 / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
Potassium permanganate	7722-64-7	0.8mg/L (Green algae)	0.22 mg/L	None.

### Persistence and degradability

: The methods for determining biodegradability are not applicable to inorganic substances.

**Bioaccumulation potential** : No data is available on the product itself.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Potassium permanganate (CAS 7722-64-7)	N/Av	N/Av

**Mobility in soil** : No data is available on the product itself.

### Other Adverse Environmental effects

: No data is available on the product itself.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Handling for Disposal** : Handle waste according to recommendations in Section 7.

**Methods of Disposal** : Dispose in accordance with all applicable federal, state, provincial and local regulations.

Permanganate Reagent

R-0730





SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 8 of 10

## SAFETY DATA SHEET

**RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

### SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN1490	POTASSIUM PERMANGANATE	5.1	II	 
<b>TDG Additional information</b>	None.				
49CFR/DOT	UN1490	POTASSIUM PERMANGANATE	5.1	II	 
<b>49CFR/DOT Additional information</b>	Refer to 49 CFR Section 173.152 for additional Limited quantity shipping requirements.				
ICAO/IATA	UN1490	Potassium permanganate	5.1	II	 
<b>ICAO/IATA Additional information</b>	Refer to ICAO/IATA Packing Instruction				
IMDG	UN1490	POTASSIUM PERMANGANATE	5.1	II	 
<b>IMDG Additional information</b>	Consult the IMDG regulations for exceptions.				

**Special precautions for user** : None reported by the manufacturer.

**Environmental hazards** : This product meets the criteria for an environmentally hazardous material according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

: Not available.

### SECTION 15 - REGULATORY INFORMATION

**US Federal Information:**

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Potassium permanganate	7722-64-7	Yes	100 lb/ 45.4 kg	N/Av	No	N/Av



Permanganate Reagent

R-0730

SDS Preparation Date (mm/dd/yyyy): 02/28/2016

Page 9 of 10

## SAFETY DATA SHEET

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Immediate (Acute) health hazard ;Chronic Health Hazard. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

### US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Potassium permanganate	7722-64-7	No	N/Ap	Yes	Yes	No	Yes	Yes	Yes

### Canadian Information:

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

### International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Potassium permanganate	7722-64-7	231-760-3	Present	Present	(1)-446	KE-29180	Present	HSR001342

## SECTION 16. OTHER INFORMATION

### Legend

: ACGIH: American Conference of Governmental Industrial Hygienists  
 CA: California  
 CAS: Chemical Abstract Services  
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980  
 CFR: Code of Federal Regulations  
 CSA: Canadian Standards Association  
 DOT: Department of Transportation  
 EPA: Environmental Protection Agency  
 HMIS: Hazardous Materials Identification System  
 HSDB: Hazardous Substances Data Bank  
 IARC: International Agency for Research on Cancer  
 IATA: International Air Transport Association  
 ICAO: International Civil Aviation Organisation  
 IMDG: International Maritime Dangerous Goods  
 Inh: Inhalation  
 LC: Lethal Concentration  
 LD: Lethal Dose  
 MA: Massachusetts  
 MN: Minnesota  
 N/Ap: Not Applicable  
 N/Av: Not Available  
 NFPA: National Fire Protection Association  
 NIOSH: National Institute of Occupational Safety and Health  
 NJ: New Jersey

**Permanganate Reagent**

R-0730

**SDS Preparation Date (mm/dd/yyyy): 02/28/2016**

Page 10 of 10

## SAFETY DATA SHEET

NTP: National Toxicology Program  
 OSHA: Occupational Safety and Health Administration  
 PA: Pennsylvania  
 PEL: Permissible exposure limit  
 RCRA: Resource Conservation and Recovery Act  
 RI: Rhode Island  
 RTECS: Registry of Toxic Effects of Chemical Substances  
 SARA: Superfund Amendments and Reauthorization Act  
 STEL: Short Term Exposure Limit  
 TDG: Canadian Transportation of Dangerous Goods Act & Regulations  
 TLV: Threshold Limit Values  
 TWA: Time Weighted Average  
 WHMIS: Workplace Hazardous Materials Identification System

**References** :


- Canadian Centre for Occupational Health and Safety, CCHInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
- European Chemicals Agency, Classification Legislation, 2015
- Material Safety Data Sheet from manufacturer.
- OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2015.

**Preparation Date (mm/dd/yyyy)**

: 02/28/2016

**Other special considerations for handling**

: Provide adequate information, instruction and training for operators.

<p><b><u>Prepared for:</u></b>                  Lowry &amp; Associates, Div. of Chem-Aquascience, Inc.                  5-1151 Gorham Street                  Newmarket, ON L3Y 8Y1                  www.lowryassociates.ca</p>	
<p><b><u>Prepared by:</u></b>                  ICC The Compliance Center Inc.                  Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada)  <a href="http://www.thecompliancecenter.com">http://www.thecompliancecenter.com</a></p>	

### DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc. using information provided by Lowry & Associates, Div. of Chem-Aquascience, Inc. and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and Lowry & Associates, Div. of Chem-Aquascience, Inc. expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc. and Lowry & Associates, Div. of Chem-Aquascience, Inc.

**END OF DOCUMENT**