

Iodine Buffer

R-0769

SDS Preparation Date (mm/dd/yyyy): 04/29/2016

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## SAFETY DATA SHEET

### SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Iodine Buffer**

Product Code(s) : R-0769

Recommended use of the chemical and restrictions on use

: Use as directed by manufacturer for purposes directly related to water testing.  
Use pattern: Professional Use Only  
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

Clear colourless 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:

Serious eye damage/eye irritation - Category 2A

Skin Corrosion/Irritation - Category 2

Label elements

Hazard pictogram(s)



Signal Word

WARNING!

Hazard statement(s)

Causes serious eye irritation.

Causes skin irritation.

Precautionary statement(s)

Wash thoroughly after handling.

Wear eye protection/face protection.

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.

If on skin: Wash with plenty of water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

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### Other hazards

Other hazards which do not result in classification:

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

### 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>
Citric acid	2-Hydroxypropanetricarboxylic acid	77-92-9	14.00
Ammonium phosphate	Ammonium di-phosphate	7722-76-1	8.00
Ammonium hydroxide		1336-21-6	1.00

### SECTION 4. FIRST-AID MEASURES

#### Description of first aid measures

- Ingestion* : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person. Call a physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Obtain medical attention if symptoms develop and persist.
- Skin contact* : Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If irritation or symptoms develop, seek medical attention.
- Eye contact* : Flush eyes with water for at least 15 minutes. If irritation occurs or persists, seek medical attention.

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

- : Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Causes skin irritation. Symptoms may include redness, itching and swelling.

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

- : Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

#### Extinguishing media

##### *Suitable extinguishing media*

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

##### *Unsuitable extinguishing media*

- : Do not use a solid water stream as it may scatter and spread fire.

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

- : Burning may produce irritating, toxic and obnoxious fumes.

#### Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

#### Hazardous combustion products

- : Carbon oxides ;Hydrogen chloride ;Ammonia

#### 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*

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- : 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. Water spray may be useful in cooling equipment exposed to heat and flame.

### 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. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Restrict access to area until completion of clean-up.

**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

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

- : Ventilate area of release. Stop spill or leak at source if safely possible. 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).

#### 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):  
 Ammonium hydroxide (1000 lbs / 454 kg)

### SECTION 7. HANDLING AND STORAGE

#### Precautions for safe handling

- : Use only in well-ventilated areas. Wear protective gloves and eye/face protection. Do not breathe mist or vapor. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling.

**Conditions for safe storage** : Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

**Incompatible materials** : None known or reported by the manufacturer.

### 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>
Citric acid	N/Av	N/Av	N/Av	N/Av
Ammonium phosphate	N/Av	N/Av	N/Av	N/Av
Ammonium hydroxide	25 ppm (Ammonia)	35 ppm (Ammonia)	50 ppm (Ammonia)	N/Av

#### Exposure controls

##### Ventilation and engineering measures

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

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- Respiratory protection** : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Advice should be sought 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. Advice should be sought from glove suppliers.
- Eye / face protection** : Wear eye/face protection. Wear safety glasses with side shields ( or goggles).
- Other protective equipment** : Wear sufficient clothing to prevent skin contact. An eyewash station and safety shower should be made available in the immediate working area.
- General hygiene considerations** : Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. 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. Handle in accordance with good industrial hygiene and safety practice.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : Clear colourless liquid.
- Odour** : Odorless.
- Odour threshold** : N/Av
- pH** : 4
- Melting/Freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- 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** : 6
- Relative density / Specific gravity** : 1
- Solubility in water** : Soluble
- Other solubility(ies)** : Not available.
- Partition coefficient: n-octanol/water or Coefficient of water/oil distribution** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Volatiles (% by weight)** : 76%
- Volatile organic Compounds (VOC's)** : Not available.
- Absolute pressure of container** : N/Av

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Flame projection length : N/Ap  
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 excessive heat, sparks and open flame. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.  
Incompatible materials : See Section 7 (Handling and Storage) for further details.  
Hazardous decomposition products : None known, refer to hazardous combustion products in Section 5.

### 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 : YES

#### 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*

: Harmful if swallowed. Ingestion may irritate digestive tract and cause nausea, vomiting and diarrhea.

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

: Causes skin irritation. Symptoms may include redness, blistering, pain and swelling.

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

: Causes serious eye irritation. Symptoms may include stinging, tearing, redness and swelling.

##### Potential Chronic Health Effects

: Prolonged or repeated skin contact may cause defatting and drying resulting in irritation and possible 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

: Not expected to cause reproductive effects.

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

: None known.

Synergistic materials : Not available.

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

<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>
Citric acid	N/Av	3000 mg/kg	> 2000 mg/kg (No mortality)
Ammonium phosphate	N/Av	5750 mg/kg	N/Av
Ammonium hydroxide	3670 ppm (rat) (Ammonia) 2115 ppm (mouse) (Ammonia)	350 mg/kg	N/Av

**Other important toxicological hazards**

: None known.

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity** : Not expected to be harmful to aquatic organisms. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Do not allow material to contaminate ground water system. See the following tables 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>
Citric acid	77-92-9	1516 mg/L (Bluegill sunfish)	N/Av	None.
Ammonium phosphate	7722-76-1	N/Av	N/Av	None.
Ammonium hydroxide	1336-21-6	8.2 mg/L (Fathead minnow)	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>
Citric acid	77-92-9	1535 mg/L/24hr (Daphnia magna)	N/Av	None.
Ammonium phosphate	7722-76-1	N/Av	N/Av	None.
Ammonium hydroxide	1336-21-6	0.66 mg/L (Daphnia magna)	N/Av	1

<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>
Citric acid	77-92-9	> 18 000 mg/L (Green algae) (Read-across)	N/Av	None.
Ammonium phosphate	7722-76-1	N/Av	N/Av	None.
Ammonium hydroxide	1336-21-6	N/Av	N/Av	None.

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**Persistence and degradability**

: No information available.

**Bioaccumulation potential**

: No information available.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Citric acid (CAS 77-92-9)	- 1.72	N/Av
Ammonium phosphate (CAS 7722-76-1)	N/Av	no bioaccumulation expected
Ammonium hydroxide (CAS 1336-21-6)	N/Av	N/Av

**Mobility in soil** : No information available.

**Other Adverse Environmental effects**

: No information available.

### 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.

**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
49CFR/DOT	None.	Not regulated.	not regulated	none	
<b>49CFR/DOT Additional information</b>	None.				
TDG	None.	Not regulated.	not regulated	none	
<b>TDG Additional information</b>	None.				

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

**Environmental hazards**

: This substance does not meet the criteria for an environmentally hazardous substance 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.



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### SECTION 15 - REGULATORY INFORMATION

#### US Federal Information:

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

<u>Ingredients</u>	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
Citric acid	77-92-9	Yes	None.	None.	No	N/Ap
Ammonium phosphate	7722-76-1	Yes	N/Ap	N/Av	No	N/Ap
Ammonium hydroxide	1336-21-6	Yes	1000 lb/ 454 kg	N/Ap	No	N/Ap

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: 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
Citric acid	77-92-9	No	N/Ap	No	No	No	No	No	No
Ammonium phosphate	7722-76-1	No	N/Ap	No	No	No	No	No	No
Ammonium hydroxide	1336-21-6	No	N/Ap	Yes	Yes	No	Yes	Yes	No

#### 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
Citric acid	77-92-9	201-069-1	Present	Present	(2)-1318	KE-20831	Present	HSR003138
Ammonium phosphate	7722-76-1	231-764-5	Present	Present	(1)-379	KE-01656	Present	HSR002768
Ammonium hydroxide	1336-21-6	215-647-6	Present	Present	(1)-314	KE-01688	Present	HSR001526, HSR001517, HSR001516, HSR001563 (dilution)



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### SECTION 16. OTHER INFORMATION

**Legend**

: ACGIH: American Conference of Governmental Industrial Hygienists  
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  
Inh: Inhalation  
LC: Lethal Concentration  
LD: Lethal Dose  
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  
NTP: National Toxicology Program  
OECD: Organisation for Economic Co-operation and Development  
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  
TLV: Threshold Limit Values  
TWA: Time Weighted Average  
WHMIS: Workplace Hazardous Materials Identification System

**References**

- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016.  
2. International Agency for Research on Cancer Monographs, searched 2016.  
3. Canadian Centre for Occupational Health and Safety, CCHInfoWeb databases, 2016 (Chempendium, HSDB and RTECs).  
4. Material Safety Data Sheets from manufacturer.  
5. US EPA Title III List of Lists - 2016 version.  
6. California Proposition 65 List

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**Other special considerations for handling**

: Provide adequate information, instruction and training for operators.



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<p><b>Prepared for:</b> Lowry &amp; Associates, Div. of Chem-Aquascience, Inc. 5-1151 Gorham Street Newmarket, ON L3Y 8Y1 <a href="http://www.lowryassociates.ca">www.lowryassociates.ca</a></p>	 <p><b>LOWRY</b> &amp; ASSOCIATES Div. of Chem-Aquascience, Inc.</p>
<p><b>Prepared by:</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>	 <p><b>icc ComplianceCenter</b></p>

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