

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 1 of 10

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Bleach Reagent #2**

Product Code(s)

: R-0665

Recommended use of the chemical and restrictions on use

: Use as directed by manufacturer for purposes directly related to water testing.
Restriction on use: None known

Chemical family

: Carboxylic acid

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

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. Pungent odour.

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

Corrosive to Metals - Category 1 :

Flammable Liquid - Category 3

Acute Toxicity, dermal - Category 4

Acute toxicity, inhalation - Category 4

Skin Corrosion/Irritation - Category 1

Eye Damage/Irritation - Category 1

Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory)

Label elements

Hazard pictogram(s)



Signal Word

Danger

Hazard statement(s)

Flammable liquid and vapor.

May be corrosive to metals.

Harmful in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 2 of 10

SAFETY DATA SHEET

Precautionary statement(s)

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Keep container tightly closed.
 Ground/Bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting/equipment.
 Use non-sparking tools.
 Take precautionary measures against static discharge.
 Keep only in original container.
 Do not breathe mist or vapor.
 Wash thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves/clothing and eye/face protection.

If swallowed: Rinse mouth. Do not induce vomiting.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 Wash contaminated clothing before reuse.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 If inhaled: Remove person to fresh air and keep comfortable for breathing.
 Immediately call a POISON CENTER or doctor/physician.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 Immediately call a POISON CENTER or doctor/physician.
 In case of fire: Use water fog, dry chemical, CO2 or 'alcohol' foam to extinguish.
 Absorb spillage to prevent material damage.

Store in a well-ventilated place. Keep cool.
 Keep container tightly closed.
 Store locked up.
 Store in corrosive resistant container with a resistant inner liner.

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Other hazards which do not result in classification: Ingestion can cause irritation and corrosive action in the mouth, stomach and digestive tract. Contact with metals may release small amounts of flammable hydrogen gas.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Acetic acid glacial	Acetic Acid	64-19-7	99.00

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Seek immediate medical attention/advice. 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. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.
- Inhalation* : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.
- Skin contact* : Remove/Take off immediately all contaminated clothing. Flush affected skin with gently flowing lukewarm water for at least 20 minutes. Seek immediate medical attention/advice. Wash contaminated clothing before re-use. Leather and shoes that have been contaminated with the solution may need to be destroyed.

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 3 of 10

SAFETY DATA SHEET

Eye contact : Immediately flush eyes thoroughly with running water for at least 20 to 30 minutes. Seek immediate medical attention/advice.

Most important symptoms and effects, both acute and delayed

: Harmful in contact with skin or if inhaled. Causes serious eye damage. Symptoms may include severe pain, blurred vision, redness and corrosive damage. Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling. May cause respiratory irritation. Symptoms may include persistent coughing, shortness of breath, coughing up blood and wheezing. Ingestion may cause severe irritation to the mouth, throat and stomach.

Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required. Causes chemical burns. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Use water fog or fine spray, foams, carbon dioxide or 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 produces obnoxious and toxic fumes. Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to a source of ignition and flash back.

Flammability classification (OSHA 29 CFR 1910.106)

: Flammable Liquids - Category 3

Hazardous combustion products

: Carbon oxides and other irritating fumes and smoke.

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. 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

: All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to protective measures listed in sections 7 and 8. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. For large spills, dike the area to prevent spreading.

Methods and material for containment and cleaning up

: Ventilate the contaminated area. Stop the flow of material, if this is without risk. Dike for water control. Use only non-sparking tools and equipment in the clean-up process. 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).

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

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).
- EPA/CERCLA Reportable quantity (RQ): acetic acid (5000 lbs / 2270 kg)

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection. Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flame. - No smoking. Keep away from metals and incompatibles. No smoking in the area. When preparing or diluting solution, always add to water, slowly and with stirring. Use only non-sparking tools. Take precautionary measures against static discharge. Ground/Bond container and receiving equipment. When diluting, always add the product to water. Never add water to the product. Label containers appropriately. 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 incompatibles and out of direct sunlight. 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. Store in corrosion-resistant containers.

- Incompatible materials** : Alkalies; Strong oxidizing agents; Metals (Carbon steel; Brass; Zinc; bronze); Acetaldehyde..

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>
Acetic acid glacial	10 ppm	15 ppm	10 ppm ; 25 mg/m ³	N/Av

Exposure controls

Ventilation and engineering measures

- : Provide exhaust ventilation or other engineering controls to keep the airborne concentration of vapours below their respective threshold limit value. Use explosion-proof electrical and ventilating equipment.

- Respiratory protection** : Respiratory protection is required if the concentrations exceed the TLV. A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may be used to reduce exposure. Advice should be sought from respiratory protection specialists.

- 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 splash goggles are recommended. A full face shield may also be necessary.

- Other protective equipment** : Wear resistant clothing and boots. 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

- : Do not breathe mist or vapor. 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.

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 5 of 10

SAFETY DATA SHEET

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear colourless liquid.
Odour : pungent; vinegar-like
Odour threshold : N/Av
pH : 2.4
Melting/Freezing point : 17°C (62.6°F)
Initial boiling point and boiling range
: 117.9°C (244.22°F)
Flash point : 40°C(104 °F)
Flashpoint (Method) : closed cup
Evaporation rate (BuAe = 1) : 0.97
Flammability (solid, gas) : Not applicable.
Lower flammable limit (% by vol.)
: 4.0%
Upper flammable limit (% by vol.)
: 19.9%
Oxidizing properties : None known.
Explosive properties : Not explosive
Vapour pressure : 16 hPa @ 20°C
Vapour density : 2.1
Relative density / Specific gravity
: 1.0446
Solubility in water : Soluble
Other solubility(ies) : Soluble in most organic solvents.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution
: -0.17 (Measured)
Auto-ignition temperature : 485°C (905°F)
Decomposition temperature : Not available.
Viscosity : 1.056 mPa.s @ 25°C
Volatiles (% by weight) : Not available.
Volatile organic Compounds (VOC's)
: N/Av
Absolute pressure of container
: N/Av
Flame projection length : N/Av
Other physical/chemical comments
: Molecular Weight: 60.05

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive. May be corrosive to metals. Contact with metals may release small amounts of flammable hydrogen gas.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions
: No dangerous reaction known under conditions of normal use.
Conditions to avoid : Avoid heat and open flame. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.
Incompatible materials : Alkalies; Strong oxidizing agents; Metals (Carbon steel; Brass; Zinc; bronze); Acetaldehyde..

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 6 of 10

SAFETY DATA SHEET

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

: Harmful if inhaled. May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include coughing, choking and wheezing. Inhalation of extremely high concentrations could cause pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Sign and symptoms ingestion

: May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.

Sign and symptoms skin

: Harmful in contact with skin. Causes severe skin irritation. Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring. May be absorbed through the skin.

Sign and symptoms eyes

: Causes serious eye damage. Chemical burns, corneal damage, and possibly blindness can result from direct contact.

Potential Chronic Health Effects

: Chronic skin contact with low concentrations may cause dermatitis. Prolonged or repeated inhalation of fumes or vapours, may cause chronic lung effects, such as bronchitis, and tooth enamel erosion.

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 have other reproductive effects.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects : Eyes, skin, respiratory system and digestive system.

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: Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory) May cause respiratory irritation.

Not classified as specific target organ toxicity-repeated exposure.

Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

Synergistic materials : Not available.

Toxicological data : See below for toxicological data on the substance.

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 7 of 10

SAFETY DATA SHEET

<u>Chemical name</u>	<u>LC₅₀(4hr)</u>	<u>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Acetic acid glacial	11.4 mg/L	3310 mg/kg	1060 mg/kg

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. 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>
Acetic acid glacial	64-19-7	>300.82mg/L (Zebra fish)	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>
Acetic acid glacial	64-19-7	65mg/L (Water flea)	n/av	none

<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>
Acetic acid glacial	64-19-7	37.9mg/L (Green algae)	n/av	none

Persistence and degradability

: Readily biodegradable.

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>
Acetic acid glacial (CAS 64-19-7)	-0.17	3.2

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. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal

: Dispose of in accordance with federal, provincial and local hazardous waste laws.

Bleach Reagent #2

R-0665









SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 8 of 10

SAFETY DATA SHEET

RCRA : The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN2789	ACETIC ACID GLACIAL	8	II	 
TDG Additional information	May be shipped as LIMITED QUANTITY in containers of less than 500 mL, in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption. ERAP: 3000 L				
49CFR/DOT	UN2789	ACETIC ACID, GLACIAL	8	II	 
49CFR/DOT Additional information	US CERCLA Reportable quantity (RQ): (5000 lbs / 2270 kg)				
ICAO/IATA	UN2789	Acetic acid, glacial	8	II	 
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				
IMDG	UN2789	ACETIC ACID, GLACIAL OR ACETIC ACID SOLUTION, more than 80% acid, by mass	8	II	 
IMDG Additional information	Packing Code: P001 Packing Special Provisions: - IBC Code: IBC02 IBC Special Provision: - IMO Tank Instructions: T4 UN Tank Instructions: T7 Tank Special Provisions: TP2				

Special precautions for user : Keep away from heat, sparks and open flame. - No smoking.

Environmental hazards : 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:

<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
Acetic acid glacial	64-19-7	Yes	5000 lb/ 2270 kg	N/Ap	No	N/Ap

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 9 of 10

SAFETY DATA SHEET

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: Fire Hazard; Acute 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
Acetic acid glacial	64-19-7	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes

Canadian Information:

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

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

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
Acetic acid glacial	64-19-7	200-580-7	Present	Present	(2)-688	KE-00013	Present	HSR000975, HSR001580, HSR001581, HSR001582 (dilution)

SECTION 16. OTHER INFORMATION

Legend

- : ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Services
- ERAP: Emergency Response Assistance Plan
- HSDB: Hazardous Substances Data Bank
- IARC: International Agency for Research on Cancer
- Inh: Inhalation
- LC: Lethal Concentration
- LD: Lethal Dose
- MSHA: Mine Safety and Health Administration
- N/Ap: Not Applicable
- N/Av: Not Available
- NIOSH: National Institute of Occupational Safety and Health
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
- RTECS: Registry of Toxic Effects of Chemical Substances
- 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

Bleach Reagent #2

R-0665

SDS Preparation Date (mm/dd/yyyy): 02/29/2016

Page 10 of 10

SAFETY DATA SHEET

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

Preparation Date (mm/dd/yyyy)

: 02/29/2016

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p><u>Prepared for:</u> Lowry & Associates, Div. of Chem-Aquascience, Inc. 5-1151 Gorham Street Newmarket, ON L3Y 8Y1 www.lowryassociates.ca</p>	
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