

LIQUID NITRATE TEST SOLUTION #1

Chemwatch Material Safety Data Sheet
Issue Date: 21-Oct-2005

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

LIQUID NITRATE TEST SOLUTION #1

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

SUPPLIER

Company: Aquarium Pharmaceuticals Incorporated
Address:
50 East Hamilton Street
Chalfont
PA, 18914
USA
Telephone: +1 215 822 8181

Company: Aquarium Pharmaceuticals Incorporated
Address:
PO Box 218
Chalfont
PA, 18914-0218
USA
Telephone: +1 215 822 8181
Emergency Tel: +1800 222 1222 (US Only)

PRODUCT USE

Nitrate test solution for product LR1800, 34 and 401M.

SYNONYMS

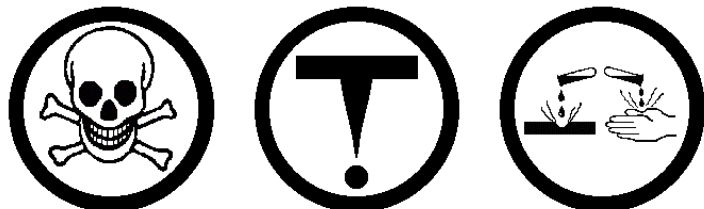
"Solution ID# 3306"

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
hydrochloric acid	7647-01-0	14 ap.
other ingredients, proprietary		N/S

Section 3 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful by inhalation.
Irritating to eyes, respiratory system and skin.
Cumulative effects may result following exposure*.
Eye contact may produce serious damage*.

continued...

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Section 3 - HAZARDS IDENTIFICATION

Exposure may produce irreversible effects*.

*(limited evidence)

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and esophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Swelling of the epiglottis may make it difficult to breathe which may result in suffocation. More severe exposure may result in vomiting blood and thick mucus, shock, abnormally low blood pressure, fluctuating pulse, shallow respiration and clammy skin, inflammation of stomach wall, and rupture of esophageal tissue. Untreated shock may eventually result in kidney failure. Severe cases may result in perforation of the stomach and abdominal cavity with consequent infection, rigidity and fever. There may be severe narrowing of the esophageal or pyloric sphincters; this may occur immediately or after a delay of weeks to years. There may be coma and convulsions, followed by death due to infection of the abdominal cavity, kidneys or lungs.

EYE

This material can cause eye irritation and damage in some persons. If applied to the eyes, this material causes severe eye damage. Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely. Severe burns produce long-lasting and possibly irreversible damage. The appearance of the burn may not be apparent for several weeks after the initial contact. The cornea may ultimately become deeply opaque resulting in blindness.

SKIN

Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

Inhalation of vapors or aerosols (mists, fumes), generated by the material

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Section 3 - HAZARDS IDENTIFICATION

during the course of normal handling, may be harmful.

There is some evidence to suggest that this material can cause, if inhaled once, irreversible damage of organs.

Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Swelling of the lungs can occur, either immediately or after a delay; symptoms of this include chest tightness, shortness of breath, frothy phlegm and cyanosis. Lack of oxygen can cause death hours after onset.

CHRONIC HEALTH EFFECTS

Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Center or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Center or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Center.
- Transport to hospital, or doctor.

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Section 4 - FIRST AID MEASURES

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to strong acids:
- Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
 - Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
 - Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
 - Strong acids produce a coagulation necrosis characterized by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

INGESTION:

- Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- DO NOT attempt to neutralize the acid since exothermic reaction may extend the corrosive injury.
- Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- Charcoal has no place in acid management.
- Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN:

- Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- Deep second-degree burns may benefit from topical silver sulfadiazine.

EYE:

- Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. DO NOT use neutralizing agents or any other additives. Several liters of saline are required.
 - Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
 - Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).
- [Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

Flash Point (°F): Not Applicable
Lower Explosive Limit (%): Not Applicable
Upper Explosive Limit (%): Not Applicable
Autoignition Temp (°F): Not Applicable

continued...

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Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Use fire fighting procedures suitable for surrounding area.
 - DO NOT approach containers suspected to be hot.
 - Cool fire exposed containers with water spray from a protected location.
 - If safe to do so, remove containers from path of fire.
 - Equipment should be thoroughly decontaminated after use.
- When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 2625 feet in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of rigid containers.
- May emit corrosive, poisonous fumes. May emit acrid smoke. Decomposition may produce toxic fumes of, hydrogen chloride.

FIRE INCOMPATIBILITY

None known.

PERSONAL PROTECTION

- Glasses:
Full face- shield.
- Gloves:
PE/EVAL/PE Gloves.
- Respirator:
Type B-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labeled container for waste disposal.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

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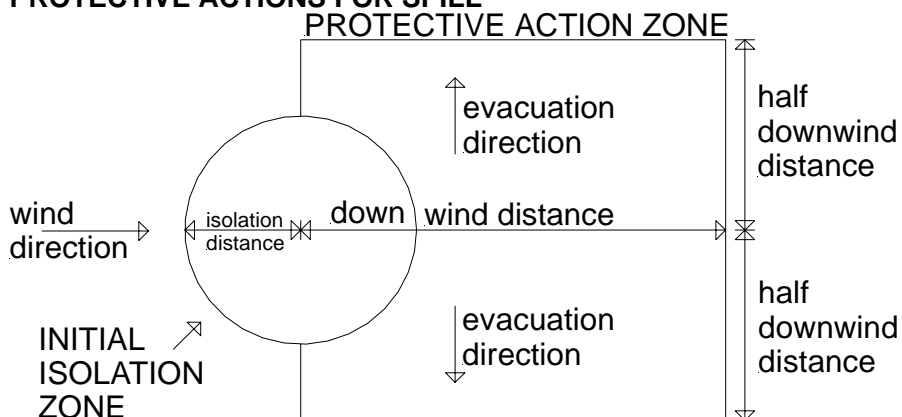
Section 6 - ACCIDENTAL RELEASE MEASURES

- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Neutralize/decontaminate residue.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (ppm)	Revised IDLH Value (mg/m3)
Hydrogen chloride	50	

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance	25 meters
Downwind Protection Distance	250 meters

FOOTNOTES

- 1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.
- 2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.
- 3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.
- 4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking

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Section 6 - ACCIDENTAL RELEASE MEASURES

less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".

LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.

- 5 Guide 154 is taken from the US DOT emergency response guide book.
- 6 IERG information is derived from CANUTEC - Transport Canada.

ACUTE EXPOSURE GUIDELINE LEVELS (AEGLE) (in ppm)

AEGLE Type	5 min	10 min	30 min	60 min	4 hr	8 hr
AEGLE 1		1.8	1.8	1.8	1.8	1.8
AEGLE 2		100	43	22	11	11
AEGLE 3		620	210	100	26	26

AEGLE 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGLE 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGLE 3: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

hydrochloric acid 150 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

hydrochloric acid 20 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

hydrochloric acid 3 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:

hydrochloric acid 0.5 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+) >= 0.1%	Toxic (T) >= 3.0%
R50 >= 0.25%	Corrosive (C) >= 5.0%
R51 >= 2.5%	
else >= 10%	

where percentage is percentage of ingredient found in the mixture

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Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
 - Wear protective clothing when risk of exposure occurs.
 - Use in a well-ventilated area.
 - WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
 - Avoid smoking, naked lights or ignition sources.
 - Avoid contact with incompatible materials.
 - When handling, DO NOT eat, drink or smoke.
 - Keep containers securely sealed when not in use.
 - Avoid physical damage to containers.
 - Always wash hands with soap and water after handling.
 - Work clothes should be laundered separately.
 - Launder contaminated clothing before re-use.
 - Use good occupational work practice.
 - Observe manufacturer's storing and handling recommendations.
 - Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
- DO NOT allow clothing wet with material to stay in contact with skin.

RECOMMENDED STORAGE METHODS

- DO NOT use aluminum or galvanized containers.
- Check regularly for spills and leaks.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

US OSHA Permissible Exposure Levels (PELs)

Z	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	Max excursion ppm	Max excursion mg/m ³	Max excursion duration (mins)
Z1	Hydrogen chloride					5	7			

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³
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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

US California Permissible Exposure Limits for Chemical Contaminants	Hydrogen chloride; muriatic acid	5	7		
US Minnesota Permissible Exposure Limits (PELs)	Hydrogen chloride	5	7		
US Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	Hydrogen chloride	(C)5	(C)7		
US Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	Hydrogen chloride	5	7		
US Tennessee Occupational Exposure Limits - Limits For Air Contaminants	Hydrogen chloride	5	7		
US Idaho - Limits for Air Contaminants	Hydrogen chloride	5	7		
Canada Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	Hydrogen chloride				7.50000
Canada Yukon Permissible Concentrations for Airborne Contaminant Substances	Hydrogen chloride	5	7	-	-
US Washington Permissible exposure limits of air contaminants	Hydrogen chloride				5.0
Canadian British Columbia Occupational Exposure Limits (Revised 2003)	Hydrogen chloride				2
NIOSH Recommended Exposure Limits for Hazardous Agents in the Workplace	Hydrogen chloride				5
US California Permissible Exposure Limits for Chemical Contaminants	Hydrogen chloride; muriatic acid	5	7		
US Minnesota Permissible Exposure Limits (PELs)	Hydrogen chloride	5	7		
US Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	Hydrogen chloride	(C)5	(C)7		
US Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	Hydrogen chloride	5	7		
US Tennessee Occupational Exposure Limits - Limits For Air Contaminants	Hydrogen chloride	5	7		
US Idaho - Limits for Air Contaminants	Hydrogen chloride	5	7		
Canada Saskatchewan Occupational Health and	Hydrogen chloride				7.50000

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Safety Regulations -

Contamination Limits

Canada Yukon Permissible Concentrations for Airborne Contaminant Substances	Hydrogen chloride	5	7	-	-
US Washington Permissible exposure limits of air contaminants	Hydrogen chloride				5.0
Canadian British Columbia Occupational Exposure Limits	Hydrogen chloride (Revised 2003)				2
NIOSH Recommended Exposure Limits for Hazardous Agents in the Workplace	Hydrogen chloride				5

ODOUR SAFETY FACTOR (OSF)

OSF=1.3 (hydrochloric acid)

Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odor Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odor Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odor Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	Idem for 50-90% of persons being distracted
C	1-26	Idem for less than 50% of persons being distracted
D	0.18-1	0-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	Idem for less than 10% of persons aware of being tested

Amoore and Hautala * have determined that it is only at an OSF value of 26 that 50% of distracted persons can detect the substance at the Exposure Standard value. In the case of alerted persons, an OSF of 26 means that 99% of them can detect the odor at the Exposure Standard value. It is ONLY for substances belonging to Class A and B that there is a reasonable chance of being warned in time, that the Exposure Standard is being exceeded. * Journal Applied Toxicology: Vol 3, 1983, p272

NOTE: The use of the OSF may be inappropriate for mixtures where substances mask the odor of others.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

INGREDIENT DATA

HYDROCHLORIC ACID:

Odour Threshold Value: 0.262 ppm (detection), 10.06 ppm (recognition)

NOTE: Detector tubes for hydrochloric acid, measuring in excess of 1 ppm, are available commercially.

Hydrogen chloride is a strong irritant to the eyes, mucous membranes and skin. Chronic exposure produces a corrosive action on the teeth. Reports of respiratory irritation following short-term exposure at 5 ppm have led to the recommended TLV-C. There is no indication that skin contact with hydrogen chloride elicits systemic poisoning and a skin designation has not been applied.

Exposure of humans to hydrogen chloride at 50 to 100 ppm for 1 hour is reported to be barely tolerable; 35 ppm caused irritation of the throat on short exposure and 10 ppm was the maximal concentration for prolonged exposure. It has been stated that hydrogen chloride at concentrations of 5 ppm is immediately irritating.

-
Toxic effects of hydrochloric acid

Concentration	Clinical effects
0.067 - 0.267 ppm	Reported range of odour thresholds and changes in respiratory pattern
5 ppm	No organic damage
10 ppm	Irritation; work undisturbed
10-50 ppm	Work difficult but possible
35 ppm	Short exposure irritation of the throat
50-100 ppm	Exposure for 1 h barely tolerable
1000-2000 ppm	Brief exposure dangerous; laryngospasm
1300-2000 ppm	Lethal after a few minutes

PERSONAL PROTECTION

EYE

- Chemical goggles.
- Full face shield.
- Contact lenses pose a special hazard; soft contact lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Elbow length PVC gloves.

When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	B-1 P	-
1000	50	-	B-1 P
5000	50	Airline*	-
5000	100	-	B-2 P
10000	100	-	B-3 P
	100+		Airline* *

* - Continuous Flow ** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator. Correct fit is essential to obtain adequate protection an approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Mixes with water.
Corrosive.
Acid.

Molecular Weight: Not Applicable
Melting Range (°C): Not Available
Solubility in water (g/L): Miscible
pH (1% solution): Not Available
Volatile Component (%vol): Not Available
Relative Vapor Density (air=1): Not Available
Lower Explosive Limit (%): Not Applicable
Autoignition Temp (°C): Not Applicable
State: Liquid

Boiling Range (°C): Not Available
Specific Gravity (water=1): 1.155
pH (as supplied): <1
Vapor Pressure (kPa): Not Available
Evaporation Rate: Not Available
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not Applicable
Decomposition Temp (°C): Not Available

APPEARANCE

Yellow-orange highly acidic liquid with no odour; mixes with water.

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Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Contact with alkaline material liberates heat.

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

Segregate from alkalis, oxidizing agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.

Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.

Avoid strong bases.

Section 11 - TOXICOLOGICAL INFORMATION

Liquid Nitrate Test Solution #1

Not available. Refer to individual constituents.

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

HYDROCHLORIC ACID:

TOXICITY

Unreported (man) LDLo: 81 mg/kg

Inhalation (human) LCLo: 1300 ppm/30 min

Inhalation (human) LCLo: 3000 ppm/5 min

Inhalation (rat) LC50: 3124 ppm/1h

Oral (rat) LD50: 900 mg/kg

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

IRRITATION

Eye (rabbit): 5mg/30s - mild

MATERIAL

CARCINOGEN

SENSITIZER SKIN

MUTAGEN

REPROTOXIN

Liquid Nitrate Test Solution

#1

hydrochloric acid

Listed

CARCINOGEN

ACGIH: hydrochloric acid: A4

Section 12 - ECOLOGICAL INFORMATION

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Refer to data for ingredients, which follows:

HYDROCHLORIC ACID:

Hazardous Air Pollutant: Yes

Fish LC50 (96hr.) (mg/l): 0.282

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Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity

Fish LC100 (24 h): trout 10 mg/l

TLm (96 h): mosquito fish 282 ppm (fresh water)

LC50 : goldfish 178 mg/l

Shrimp LC50 (48 h): 100 - 330 ppm (salt water)

Starfish LC50 (48 h): 100 - 330 mg/l

Cockle LC50 (48 h): 330 - 1000 mg/l

[Hach]

Hydrogen chloride in water dissociates almost completely, releasing hydrogen and chloride ions; the hydrogen ions are captured by water to produce hydronium ions.

Hydrochloric acid infiltrates soil, the rate dependent on moisture content. During soil transport, hydrochloric acid dissolves soil components.

Drinking water standard:

chloride: 400 mg/l (UK max.)

250 mg/l (WHO guideline)

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Recycle wherever possible.

- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

- Treat and neutralize at an approved treatment plant. Treatment should involve:

Neutralization with soda-ash or soda-lime followed by:

- Burial in a licensed land-fill or Incineration in a licensed apparatus (after admixture with suitable combustible material).

- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

Puncture containers to prevent re-use and bury at an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

Shipping Name: CORROSIVE LIQUID, ACIDIC,
INORGANIC, N.O.S.

Hazard Class: 8

SubRisk: None

UN/NA Number: 3264

Packing Group: II

Labels Required: corrosive

Additional Shipping Information:

continued...

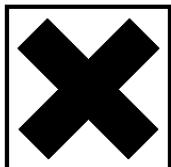
LIQUID NITRATE TEST SOLUTION #1

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Section 14 - TRANSPORTATION INFORMATION

International Transport Regulations:
IMO: 8

Section 15 - REGULATORY INFORMATION



RISK

Harmful by inhalation.
Irritating to eyes, respiratory system and skin.

US Federal Regulations

A. General Product Information

In addition to Federal and State regulation, local regulations may apply. Check with your local regulatory authorities.

B. Component Information

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 455 Appendix A) SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4):

hydrochloric acid (7647-01-0,14ap.%)
SARA 313: form R reporting required for 1.0% de minimus concentration

CERCLA: final RQ = 5000 pounds (2270 kg)

Component	TSCA
hydrochloric acid	Y

State Regulations

A. General Product Information

B. Component Information

The following components appear on one or more of the following state hazardous substance lists.

Component	CAS No	CA	FL	MA	MN	NJ	PA
hydrochloric acid	7647-01-0	Y	Y	Y	Y	Y	Y

Y=Yes this material appears on that state's hazardous substances list.

N=No this material does not appear on that state's hazardous substances list.

Other Regulations

A. Component Information

CANADA

The following component(s) are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

continued...

LIQUID NITRATE TEST SOLUTION #1

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Section 15 - REGULATORY INFORMATION

Component	CAS No	%	Min Conc.
hydrochloric acid	7647-01-0	14 ap.	1% item 845 (502)

All of this product's components are on the Canadian Domestic

REGULATIONS

hydrochloric acid (CAS: 7647-01-0) is found on the following regulatory lists

- Canadian Domestic Substances List (DSL)
- US Toxic Substances Control Act (TSCA)
- US ACGIH Carcinogens Listing
- US SARA Section 302 Extremely Hazardous Substances
- Canada Prohibited Toxic Substances, Schedule 2, Concentration Limits (English)
- Canada Prohibited Toxic Substances - Schedule 2: Concentration Limits (French)
- US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives
- US EPA Hazardous Substances
- US California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List
- US CERCLA List of Hazardous Substances and Reportable Quantities
- US CWA (Clean Water Act) - List of Hazardous Substances
- US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances
- US Minnesota Hazardous Substance List
- US Oregon Hazardous Materials
- US EPA High Production Volume Chemicals Additional List
- US EPCRA Section 313 Chemical List For Reporting Year 2004
- US Food Additive Database
- US EPA List of Regulated Toxic Substances and Threshold Quantities for Accidental Release Prevention
- Canada Yukon Permissible Concentrations for Airborne Contaminant Substances
- US Connecticut Hazardous Air Pollutants
- Canadian Ingredient Disclosure List (SOR/88-64)
- US EPA High Production Volume Program Chemical List

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

Issue Date: 21-Oct-2005

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LIQUID NITRATE TEST SOLUTION #2

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

LIQUID NITRATE TEST SOLUTION #2

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

SUPPLIER

Company: Aquarium Pharmaceuticals Incorporated
Address:
50 East Hamilton Street
Chalfont
PA, 18914
USA
Telephone: +1 215 822 8181

Company: Aquarium Pharmaceuticals Incorporated
Address:
PO Box 218
Chalfont
PA, 18914-0218
USA
Telephone: +1 215 822 8181
Emergency Tel: +1800 222 1222 (US Only)

PRODUCT USE

Nitrate test solution for product LR1800, 34 and 401M.

SYNONYMS

"Solution ID# 3307"

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
polyethylene glycol	25322-68-3	98
sulfanilamide	63-74-1	<5

Section 3 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Exposure may produce irreversible effects*.
May affect fertility*.
May possibly be harmful to the fetus/ embryo*.
May produce discomfort of the eyes, respiratory tract and skin*.

*(limited evidence)

continued...

LIQUID NITRATE TEST SOLUTION #2

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Section 3 - HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The material has NOT been classified as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality (death) rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, unintentional ingestion is not thought to be cause for concern.

EYE

There is some evidence to suggest that this material can cause eye irritation and damage in some persons. Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterized by a temporary redness of the conjunctiva (similar to windburn). Eye drops with sulfonamides can cause local irritation, sensations of burning and stinging, blurred vision and loss of depth perception. The conjunctiva and cornea may become inflamed, and the cornea and lens may become clouded.

SKIN

There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions. There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

There is some evidence to suggest that this material, if inhaled, can irritate the throat and lungs of some persons. Although inhalation is not thought to produce harmful effects, the material may still produce health damage, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally confined to doses producing mortality (death) rather than those producing morbidity (disease, ill-health). There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

There has been some concern that this material can cause cancer or mutations but

continued...

LIQUID NITRATE TEST SOLUTION #2

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Section 3 - HAZARDS IDENTIFICATION

there is not enough data to make an assessment. There is some evidence to provide a presumption that human exposure to the material may result in impaired fertility on the basis of: some evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects. Prolonged oral treatment with sulfonamides has caused nausea, vomiting, diarrhea, abdominal pain, loss of appetite, inflammation of the mouth cavity, impaired folic acid absorption, exacerbation of porphyria, acidosis, liver damage with impaired blood clotting, jaundice and inflammation of the pancreas. Effects on the kidney include blood and crystals in the urine, painful and frequent urination or lack of urine with nitrogen retention. Nervous system symptoms include headache, drowsiness, trouble sleeping, dizziness, ringing in the ears, hearing loss, depression, hallucinations, inco-ordination, paralysis of muscles, numbness in the extremities, spinal cord damage and inflammation, convulsions and unconsciousness. Effects on the blood includes a change in blood cell distribution with loss of white blood cells and platelets, and anemia, which Africans seem to be more prone to developing than Europeans. Cyanosis can occur owing to complexes being formed by hemoglobin. Eye effects include inflamed cornea and conjunctiva with eyelid swelling and in severe cases, fear of the light. Allergies and cross-sensitivity is common, and can cause itches, wheals and sometimes a severe red rash with blisters that is often fatal. This class of drugs can scar the cornea and conjunctiva, swelling around the eyes, painful and inflamed joints, reduced sperm counts, pneumonia, fever, chills, hair loss, inflammation of vessels, lupus, reduced lung function, infertility, hypothyroidism and goiter, and increased urinary output. More seriously, the lungs may become permanently scarred and there may be irreversible damage to the nervous system and muscles. Inflammation of the skin has occurred after the drug is ingested and has traveled through the bloodstream. Skin effects often occur when there has been exposure in conjunction with UV light. Clothed areas are initially less likely to be affected but may be in later stages. Rarely there may be persistence of inflammation on light contact even after the drug has been removed.

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear
 - Flush skin and hair with running water (and soap if available).

continued...

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Section 4 - FIRST AID MEASURES

- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Treat symptomatically.

In cases of recent sulfonamide overdose the stomach should be emptied by aspiration and lavage. If kidney function is adequate, a saline purgative, such as sodium sulfate, 30 g in 250 ml water, may be given to promote peristalsis and elimination of sulfonamide in the urine may be assisted by giving alkalis, such as sodium bicarbonate and increasing fluid intake. Severe crystalluria may require ureteric catheterization and irrigation with warm 2.5% sodium bicarbonate solution. Treatment should be continued until it can be assumed that the sulfonamide has been eliminated. The majority of sulfonamides are metabolized to acetylated derivatives which retain the toxicity of the parent compound and thus may indicate more active removal when adverse effects are very severe. Active measures may include forced diuresis, peritoneal dialysis and charcoal hemoperfusion.

[Martindale: The Extra Pharmacopoeia, 28th Ed.].

Section 5 - FIRE FIGHTING MEASURES

Flash Point (°F): Not Applicable
Lower Explosive Limit (%): Not Applicable
Upper Explosive Limit (%): Not Applicable
Autoignition Temp (°F): Not Applicable

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

continued...

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Section 5 - FIRE FIGHTING MEASURES

Combustion products include, carbon dioxide (CO₂), nitrogen oxides (NO_x), sulfur oxides (SO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

May emit corrosive fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labeled container for waste disposal.

MAJOR SPILLS

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources. Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)

AEGL 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL 3: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

continued...

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

polyethylene glycol 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

polyethylene glycol 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

polyethylene glycol 30 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

polyethylene glycol 10 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+) >= 0.1%	Toxic (T) >= 3.0%
R50 >= 0.25%	Corrosive (C) >= 5.0%
R51 >= 2.5%	
else >= 10%	

where percentage is percentage of ingredient found in the mixture

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

DO NOT USE brass or copper containers / stirrers.

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

DO NOT allow clothing wet with material to stay in contact with skin.

RECOMMENDED STORAGE METHODS

- Metal can or drum
- Packing as recommended by manufacturer.
- Check all containers are clearly labeled and free from leaks.

continued...

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Section 7 - HANDLING AND STORAGE

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³
US AIHA Workplace Environmental Exposure Levels (WEELs)	Polyethylene Glycols		10				
No data available:	sulfanilamide as (CAS: 63-74-1)						

Not available. Refer to individual constituents.

INGREDIENT DATA

POLYETHYLENE GLYCOL:

No exposure limits set by NOHSC or ACGIH.

For powdered forms:

Dusts not otherwise classified, as inspirable dust;

ES TWA: 10 mg/m³.

The polyethylene glycols are extremely low in oral toxicity, are not significantly irritating to the eyes or skin, and are not absorbed through the skin in toxic amounts. vapour pressures are extremely low and inhalation exposure is limited to mists. Based on experimental data and human experience, these substances do not present significant hazards to health in the workplace.

SULFANILAMIDE:

Dusts not otherwise classified, as inspirable dust;

ES TWA: 10 mg/m³.

Particulate (insoluble or poorly soluble *) Not Otherwise Specified (P.N.O.C)

TLV TWA: 10 mg/m³ Inhalable particulate

TLV TWA: 3 mg/m³ Respirable particulate

OEL-Sweden, United Kingdom: 10 mg/m³ total dust, 5 mg/m³ respirable dust

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload)

* Notice of intended change.

PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

PVC chemical resistant type.

Respirator:

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. DO NOT wear contact lenses.

HANDS/FEET

Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear an approved respirator. An approved respirator (supplied air type) may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Mixes with water.

Molecular Weight: Not Applicable
Melting Range (°C): Not Available
Solubility in water (g/L): Miscible
pH (1% solution): Not Available
Volatile Component (%vol): Not Available
Relative Vapor Density (air=1): Not Available
Lower Explosive Limit (%): Not Applicable
Autoignition Temp (°C): Not Applicable
State: Liquid

Boiling Range (°C): Not Available
Specific Gravity (water=1): 1.127
pH (as supplied): Not Available
Vapor Pressure (kPa): Not Available
Evaporation Rate: Not Available
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not Applicable
Decomposition Temp (°C): Not Available

APPEARANCE

Translucent light gray liquid with no odor; mixes with water.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidizing agents.

Section 11 - TOXICOLOGICAL INFORMATION

Liquid Nitrate Test Solution #2

Not available. Refer to individual constituents.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects
of Chemical Substances

POLYETHYLENE GLYCOL:

TOXICITY

Oral (rat) LD50: 33750 mg/kg
Eye (rabbit): 500mg/24h - mild.
for molecular weights (200-8000) *

IRRITATION

Skin (rabbit): 500mg/24h - mild.

continued...

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Section 11 - TOXICOLOGICAL INFORMATION

Oral (rat) LD50: 31000->50000 mg/kg
Oral (mice) LD50: 38000->50000 mg/kg
Oral (g.pig) LD50: 17000->50000 mg/kg
Oral (rabbit) LD50: 14000->50000 mg/kg
Intraperitoneal (mice) LD50: 3100-12900 mg/kg

* AIHA WEEL Guides

SULFANILAMIDE:

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.
Refer to data for ingredients, which follows:

POLYETHYLENE GLYCOL:
BOD 5 if unstated: 0-0.02,1%
COD : 1.62-1.74,98%
Toxicity Fish: TLm(96)>10000mg/L

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
Puncture containers to prevent re-use and bury at an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

DOT Information
Shipping Name: None
Hazard Class: None
SubRisk: None
UN/NA Number: None
Packing Group: None
Additional Shipping Information:
International Transport Regulations:
IMO: None

Section 15 - REGULATORY INFORMATION

RISK

US Federal Regulations

A. General Product Information

In addition to Federal and State regulation, local regulations may apply. Check with your local regulatory authorities.

B. Component Information

This material contains one or more of the following chemicals required

continued...

LIQUID NITRATE TEST SOLUTION #2

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Section 15 - REGULATORY INFORMATION

to be identified under SARA Section 302 (40 CFR 455 Appendix A)
SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4): None

Component TSCA
polyethylene glycol Y
sulfanilamide Y

State Regulations

A. General Product Information

B. Component Information

The following components appear on one or more of the following state hazardous substance lists.

Component	CAS No	CA	FL	MA	MN	NJ	PA
polyethylene glycol	25322-68-3	N	N	N	Y	N	N
sulfanilamide	63-74-1	N	N	N	N	N	N

Y=Yes this material appears on that state's hazardous substances list.

N=No this material does not appear on that state's hazardous substances list.

Other Regulations

A. General Product Information

All components are listed in the European Inventory of New and Existing Chemical Substances (EINECS)

B. Component Information

CANADA

The following component(s) are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

All of this product's components are on the Canadian Domestic

REGULATIONS

polyethylene glycol (CAS: 25322-68-3) is found on the following regulatory lists

Canadian Domestic Substances List (DSL)

US Toxic Substances Control Act (TSCA)

US Minnesota Hazardous Substance List

US EPA High Production Volume Program Chemical List

US California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Respiratory

US Food Additive Database

sulfanilamide (CAS: 63-74-1) is found on the following regulatory lists

Canadian Domestic Substances List (DSL)

US Toxic Substances Control Act (TSCA)

US DOE Temporary Emergency Exposure Limits (TEELs)

US California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Respiratory

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations

continued...

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Section 16 - OTHER INFORMATION

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