SAFETY DATA SHEET

1. Product and Company Identification

Product Name	Sodium perchlorate solution, 5M
Product Number	PB2IS01
Product Use	Calibration Solution for Ion Selective Electrode
Manufacturer	Van London Company
Address	10540 Rockley Road, Houston, Texas 77099
Telephone	832-456-6641
Emergency Phone	832-456-6641

2. Hazards Identification

Signal word	Warning
Hazard Statement(s)	
H271	May cause fire or explosion; strong oxidizer.
H272	May intensify fire; oxidizer.
EUH044	Risk of explosion if heated under confinement.
O; R9	Oxidizing; Explosive when mixed with combustible material.
H373	May cause damage to thyroid through prolonged or repeated exposure via oral and inhalation route.
Xn, R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
Xi; R36	Irritant; Irritating to eyes.
Precautionary Statement(s)	
P221	Take any precaution to avoid mixing with combustible materials.
P272	Contaminated work clothing should not be allowed out of the workplace.
P363	Wash contaminated clothing before reuse.

Emergency Overview

GHS Classification

Acute aquatic toxicity (Category 2), H401

Chronic aquatic toxicity (Category 2), H411

HMIS Classification

Health Hazard:	1
Flammability:	0
Physical Hazards:	2

NFPA Rating

Health Hazard:	1
Fire:	0

Reactivity Hazard: 2

Potential Health Effects

Inhalation: May cause respiratory tract irritation; coughing; shortness od breath.

Skin: Irritating to mucous membrane and skin.

Eyes: Irritation, redness, tearing.

Ingestion: may cause gastrointestinal irritation; large doses may cause nausea.

3. Composition/Information on Ingredients

Component	CAS Number	Weight %
Sodium perchlorate	7601-89-0	62
Deionized water	7732-18-5	38

4. First Aid Measures

Eye Flush eyes with water for at least 15 minutes. Move exposed person to non-contaminated area

Skin Wash off with soap and plenty of water.

Inhalation Move person into fresh air. If not breathing, give artificial respiration.

Ingestion Give water. Induce vomiting. Keep airway clear. Seek medical attention.

5. Fire Fighting Measures

Suitable extinguishing media Use water spray - other extinguishing materials are ineffective.

Hazardous combustion products Sodium perchlorate is an oxidizing agent and may cause rapid combustion or explosions if mixed with fuels, including inorganic materials or powdered metals. Burning sodium perchlorate may produce chlorine, chlorine dioxide, hydrogen chloride, and oxides of

Special protective equipment for firefighters Keep upwind or wear self contained breathing apparatus when attempting to rescue.

6. Accidental Release Measures

Personal precautions

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Wear protective gloves and eyewear.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal. Clean contaminated floor surface with water.

7. Handling and Storage

Handling Handle away from heat and humidity sources. Avoid contact with incompatible substances (organic materials and reducing agents, fuels, oils, greases)

Storage Store away from combustibles and flammables. Control static electricity and other ignition sources. Do not store with reducing agents, organic materials, especially fuels, oils, greases, etc. Do not store with explosive substances that may detonate. Do not store close to a heat

8. Exposure Controls and Personal Protection

Exposure Limits Avoid generating mists that would result in a dry exposure equivalent to:

Ingredient Name	ACGIH TWA	OSHA PEL TWA
Sodium perchlorate solution	10 mg/m3 (Inhalable particles)	15 mg/m3 Total Dust
	3.0 mg/m3 Respirable Particles	5.0 mg/m3 Respirable Fraction

EC Exposure limit values (human)

Exposure Route	DNEL (worker)	DNEL (population)
Ingestion	2.2 mg/kg bw/d	20 µg/kg bw/d

Inhalation	0.28 mg/m3	70 µg/m3

Engineering Controls	Maintain general industrial hygiene practices when using this product.	
Personal Protective Equipment	**Respiratory Protection**	Under normal conditions, repiratory protection not required. For dusty conditions, use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
	Hand Protection	Handle with plastic, rubber or latex gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Wash and dry hands after handling.
	Eye Protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).
	Skin and body protection	Impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin conact with this product.
	Hygiene measures	General industrial hygiene practice.

9. Physical and Chemical Properties

Appearance	Clear, colorless liquid
Odor	None
Odor Threshold	No data available
pH	6.0 - 8.0
Freezing Point	No data available
Boiling Point	110°C
Flash Point	No data available
Evaporation rate	Slightly slower than water.
Flammability	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor pressure	No data available
Solubility	Soluble in water
Vapor density	No data available
Relative density	No data available
Partition coefficient: n-octanol/water	No data available
Auto-Ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

10. Stability and Reactivity

Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous reactions	No data available

Conditions to avoid		Avoid elevated temperatures which can dry out product. If product is allowed to dry, this material will exhibit properties of a 5.1 oxidizer.
Materials to avoid		Sulfuric acid, powdered metals, reducing agents, and intimate mixtures with orgar
Hazardous decomposition products		Chlorine, chlorine dioxide, oxygen, nitrogen oxides, hydrogen chloride.

11. Toxicological Information

Signs and Symptoms of Overexposure		To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Acute Effects	**Eye Contact**	No data available
	Skin Contact	No data available
	Inhalation	No data available
	Ingestion	No data available
	Germ Cell Mutagenicity	No data available
Target Organ Effects		No data available
Chronic Effects		No data available
Medical Conditions Aggravated by Exposure		No data available
Acute Toxicity Values	**Oral LD50**	4200 ,g/kg rat
	Inhalation LC50	None reported
	Dermal LD50	None reported
Carcinogenicity	IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
	ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potentil carcinogen by ACGIH.
	NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated arcinogen by NTP.
	OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potentil carcinogen by OSHA.
Reproductive Toxicity		No data available
Teratogenicity		No data available
Specific target organ toxicity - single exposure		No data available
Specific target organ toxicity - repeated exposure		No data available
Aspiration Hazard		No data available
Potential Health Effects	**Inhalation**	No data available
	Ingestion	No data available
	Skin	No data available
	Eyes	No data available

12. Ecological Information

Toxicity	Daphnia Magna Acute 48-hour LC50 490 mg/l water with sodium perchlorate Pimephales Promelas Acute 96 hour LC50 1655 mg/l water with sodium perchlorat Ceriodaphnia dubia Chronic 6 day LC50 77.8 mb/l water with sodium perchlorate Pimephales promelas Subchronic 7 day LC50 270mg/l water with sodium perchlora Latuca Sativa Subchronic 7 day LC50 614 mg/kg soil

	Eisenia Foetida Acute 7 day LC50 4450 mg/kg soil
Persistence & degradability	Perchlorate ion is persistent but can be decomposed by naturally occurring bacteria in anoxic conditions in the presence of a suitable electron donor.
Bioaccumulative potential	Perchlorate has a half-life of approximately 8 hours and is excreted unchanged, mostly in urine. Perchlorate does not bio-accumulate (NAS, 2005).
Mobility in soil	No data available
Other adverse effects	No data available

13. Disposal Considerations

Disposal method	Offer surplus and non-recyclable solutions to a licensed disposal company. Do not dispose of product where it is likely to enter the environment.
Contaminated packaging	Dispose of as unused product.

14. Transport Information

DOT (US)	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

15. Regulatory Information

OSHA Hazards	No known OSHA hazards
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	No SARA hazards
Massachusetts Right To Know Components	Sodium perchlorate CAS-No. 7601-89-0

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium perchlorate	7601-89-0	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium perchlorate	7601-89-0	

California Prop. 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other Information

Issuing Date	12/16/2015
Revision No.	1.1

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