



SAFETY DATA SHEET

1. Product and Company Identification

| | |
|-----------------|--|
| Product Name | Sodium perchlorate solution, 0.1M |
| Product Number | PERAS01 |
| 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

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 of 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 | 1.4 |
| Deionized water | 7732-18-5 | 98.6 |

4. First Aid Measures

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|-------------------|---|
| 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 Special protective equipment for firefighters 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

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/m ³ (Inhalable particles) 3.0 mg/m ³ Respirable Particles | 15 mg/m ³ Total Dust 5.0 mg/m ³ 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/m ³ | 70 µg/m ³ |

Engineering Controls Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment

Respiratory Protection Under normal conditions, respiratory 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 contact with this product.

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

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|---|---|
| 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 organics |
| 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 | No data available | |
| Aggravated by Exposure | | |
| 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 potential 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 carcinogen by NTP. |
| | OSHA | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential 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 perchlorate Ceriodaphnia dubia Chronic 6 day LC50 77.8 mg/l water with sodium perchlorate Pimephales promelas Subchronic 7 day LC50 270mg/l water with sodium perchlorate 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

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|-------------------------------|---|
| 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

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

15. Regulatory Information

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|----------------------------|---|
| 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

Disclaimer The information contained herein is accurate to the best of our knowledge, but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Van London pHoenix Company makes no warranty of any kind, expressed, or implied, concerning the safe use of this material in your process or in combination with other substances. Van London pHoenix Company shall not be held liable for any damage resulting from handling or from contact with the above product.