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In accordance with NBR 14725

Product: POTASSIUM HYDROXIDE, SOLUTION - KOH

## 1. IDENTIFICATION

**Product Identification:** POTASSIUM HYDROXIDE, SOLUTION - KOH**Other ways of identification:** -**Recommended uses and restrictions on use:** In the manufacture of alkaline batteries; Dye Industry; Extractive Industry; Food Industry; Cosmetics Industry; Manufacture of Potassium Salts.**Supplier Details:**

Katrium Chemical Industries SA

Address: João Paulo Road, 530 – Honório Gurgel

Zip Code: 21512-002

Rio de Janeiro/RJ – Brazil

Contact telephone number: 55 (21) 2472-9060

**Emergency Telephone Number:** AMBIPAR RESPONSE - 0800 117 2020

## 2. HAZARD IDENTIFICATION

**GHS classification of the substance or mixture:**

Corrosive to metals: Category 1

Acute Toxicity – Oral: Category 4

Skin corrosion/irritation: Category 1A

Serious eye damage/eye irritation 1

**Classification system used:**

ABNT-NBR 14725 standard.

Globally Harmonized System for the Classification and Labeling of Chemicals, UN.

**GHS labeling elements, including precautionary statements:****Words of warning:** DANGER**Hazard phrase(s):**

H290 – May be corrosive to metals

H302 – Harmful if swallowed

H314 – Causes severe skin burns and serious eye damage.

**Precautionary phrase(s):**

P234 – Store only in original container

P280 – Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection

**EMERGENCY RESPONSE:**

P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if easy to do. Continue rinsing. P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [ or shower ].

**STORAGE:**

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P406 – Store in a corrosion-resistant container / ... With a resistant inner lining.

**DISPOSITION:**

P501 Dispose of contents and container in accordance with local regulations.

Other hazards that do not result in a classification:

There is a danger of poisoning.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

**SUBSTANCE:** POTASSIUM HYDROXIDE

Ingredients, impurities and/or stabilizing additives that contribute to the hazard:

Potassium Hydroxide - KOH (CAS 1310-58-3 ): 48.0- 51.0% min.

Water – H<sub>2</sub>O (CAS - ): 52.0- 49.0%

### 4. FIRST AID MEASURES

**Inhalation:**

If not breathing, administer artificial respiration. Consult a doctor.

**Skin contact:**

Immediately remove contaminated clothing and shoes. Wash with soap and plenty of water. Consult a doctor.

**Eye contact:**

Wash thoroughly with plenty of water for at least fifteen minutes. Consult a doctor.

**Ingestion:**

DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse the mouth with water. Consult a doctor.

**Most important symptoms and effects, acute or delayed:**

The material is extremely destructive to the tissues of the mucous membranes and upper respiratory tract, eyes and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shallow breathing, headache, nausea.

**Indication of immediate medical attention and special treatments required, if necessary:**

Treatment according to symptoms. Do not induce vomiting.

### 5. FIRE FIGHTING MEASURES

**Extinguishing media:**

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical.

**Unsuitable extinguishing media:** Water jet directly onto the product and carbon dioxide.

**Specific hazards of the substance or mixture:**

Risk of formation of toxic product by pyrolysis.

**Firefighting team protection measures:**

In case of insufficient ventilation, use suitable respiratory equipment.

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## 6. CONTROL MEASURES FOR SPILLS OR LEAKS

### For non-emergency personnel

If you observe an emergency situation involving a leak, spill, or accidental release, immediately report the accident to those responsible and stay away. If possible, eliminate ignition sources and provide sufficient ventilation to remove contaminants.

### For emergency service personnel

Evacuate people from the affected area, isolate the risk area, restrict product leakage by closing valves and turning off pumps, and prevent contact with the environment containing the product by storing it in containment dikes or appropriate containers. Use personal protective equipment as described in section 8.

### Environmental precautions:

Avoid environmental contamination. Do not allow to come into contact with sewage or rainwater. Do not dump on the ground.

### Methods and materials for containment and cleaning:

Use PPE. Collect contaminated material in alkaline-resistant containers. Dispose of contaminated materials and their containers as hazardous waste in accordance with local regulations. Keep unauthorized personnel away, isolate the area, and collect the product. Remove the product with appropriate tools. Place the waste in a suitable container for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### Prevention of worker exposure:

Use personal protective equipment as described in section 8.

#### Fire and explosion prevention:

The substance is not flammable.

#### Precautions and guidelines for safe handling:

The usual precautions for handling chemicals should be observed. Avoid any direct contact with the material.

### Hygiene measures

#### Appropriate:

Wash your hands before any break and at the end of the work period. Do not eat or smoke during the work period. Remove contaminated clothing immediately.

#### Inappropriate:

Do not eat, drink or smoke when handling the product.

### Conditions for safe storage, including any incompatibilities

#### Suitable conditions:

Keep the container tightly closed and in a well-ventilated place.

**Conditions to be avoided, including any incompatibilities:** Do not mix with incompatible materials (see "stability and reactivity" section).

### Packaging materials

**Recommended:** Steel tanks lined with hard rubber or plastic containers made of PE or PP or other resistant material.

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**Unsuitable:** Avoid contact with aluminum, zinc, tin and their alloys.**Other information:**

Keep the container hermetically sealed. Use dikes or natural barriers to contain any product leaks. Absorb while dry. If possible, stop the leak using stoppers, sealing tape, or by turning the hole, tear, or dent upward. Collect all material in suitable, properly labeled containers for later treatment and disposal. Waste must be disposed of in accordance with local, state, or federal environmental regulations. For overflow, find an appropriate location and follow the safety procedures described above.

**8. EXPOSURE CONTROL AND PERSONAL PROTECTION****Control parameters****Occupational exposure limits:**

The values below are applicable for work environments.

**Potassium Hydroxide, Solution:**

MTE NR 15 – LT: There is no established exposure limit, unclassified product.

CAL / OSHA - PEL-C: 2 mg/m<sup>3</sup>

NIOSH – REL-C: 2 mg/m<sup>3</sup>

NIOSH - REL - STEL: No exposure limit established, product not classified.

ACGIH – TLV-C: 2 mg/m<sup>3</sup>

**Biological indicators:**

There are no biological exposure indicators established by Brazilian legislation – NR 07.

**Engineering control measures:**

Gas scrubber

**Personal protective measures**

**Eye/face protection :** Wide-vision safety glasses.

**Skin protection :** Rubber gloves (PVC) and PVC boots.

**Respiratory protection :** Chemical filter respirator (in case of brief exposure). In case of longer exposure, use a self-contained breathing apparatus.

**Thermal hazards :** Not available.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state Form:** Solution

**Color:** colorless

**Odor:** Odorless

**Melting point/freezing point:** ± 5 °C

**Boiling point or initial boiling point and boiling range:** 146 °C

**Flammability:** Non-flammable

**Lower and upper explosive/flammability limits:** Not available

**Flash point:** Non-flammable

**Autoignition temperature:** Not available

**Decomposition temperature:** Not available

**pH:** no applicable

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**Kinematic viscosity:** Not available**Solubility:** at 0°C - 49.2%; 100°C - 64%**Partition coefficient – n- octanol /water (log value):** Not available**Vapor pressure:** 44.4 mmHg**Density and/or relative density:** 2.04 kg/L**Relative vapor density:** 1.5 kg/L**Particle characteristics:** Not available**Viscosity:** 52 cp

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not Available.**Chemical stability:** Stable under normal storage conditions.**Possibility of hazardous reactions:** Reacts violently with strong acids, halogenated organic compounds and nitrogenous organic compounds.**Conditions to avoid:** Avoid contact with leather, wool, water, and humidity. The product can slowly absorb moisture from the air and react with CO<sub>2</sub> in the air to form potassium carbonate.**Incompatible materials:** Reacts with strong acids. Reacts violently with water.**Hazardous decomposition products:** Potassium oxides.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity:** In contact with skin and/or eyes, causes severe burns**Skin corrosion/irritation:** Causes severe skin burns**Serious eye damage/eye irritation:** Causes severe eye burns**Respiratory or skin sensitization:** Conclusion: not sufficient for classification**Germ cell mutagenicity:** Conclusion: not sufficient for classification**Carcinogenicity:** Conclusion: Not sufficient for classification**Reproductive toxicity:** Conclusion: not sufficient for classification**Specific target organ toxicity - single exposure:** Conclusion: not sufficient for classification**Specific target organ toxicity - repeated exposure:** Conclusion: Not sufficient for classification**Aspiration hazard:** May be corrosive to metals.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:** Not classified as toxic. Large spills can cause harm to aquatic life and water quality.**Persistence and degradability :** Not available**Bioaccumulative potential :** Not available.**Mobility in soil: Soluble in water – Final destination of the product:** Not available.**Other adverse effects:** Do not allow to enter septic tanks, rivers and rainwater.

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**13. CONSIDERATIONS ON FINAL DESTINATION****Recommended methods for final disposal**

**Product:** Keep any leftover product in its original, properly sealed packaging. Do not dispose of it in sewage systems, waterways, or wastewater treatment plants.

**Used packaging:** Do not reuse empty packaging. Packaging should be washed and neutralized. Improper disposal of empty packaging and product residues in the environment causes soil, water, and air contamination, harming fauna, flora, and human health.

**14. TRANSPORTATION INFORMATION****National and international regulations****LAND: ANTT - National Land Transportation Agency:**

Resolution No. 5,998, of November 3, 2022: Updates the Regulation for the Road Transportation of Dangerous Products, approves its Supplementary Instructions, and provides other measures.

**UN Number:** 1814

**Proper shipping name:** POTASSIUM HYDROXIDE, SOLUTION

**Main risk class or subclass:** 8

**Risk Number:** 80

**Packing group:** II

**WATERWAY: DPC - Directorate of Ports and Coasts (Transportation in Brazilian waters). Maritime Authority****Regulations:**

NORMAM 01/DPC: Vessels Used in Navigation on the Open Sea.

NORMAM 02/DPC: Vessels Used in Inland Navigation.

NORMAM 05/DPC: Material Approval.

IMO - International Maritime Organization :

IMDG Code - International Maritime Dangerous Goods Code (International Maritime Dangerous Goods Code).

**UN Number:** 1814

**Proper shipping name:** POTASSIUM HYDROXIDE, SOLUTION

**Main risk class or subclass:** 8

**Risk Number:** 80

**Packing group:** II

**inS :**

**Environmental hazard:** Information not available.

**AIR : ANAC - National Civil Aviation Agency: Resolution No. 714, of April 26, 2023. RBAC (Brazilian Civil Aviation Regulation) No. 175:**

Transportation of Dangerous Goods on Civil Aircraft.

IS No. 175-001 - Supplementary Instruction.

ICAO (International Civil Aviation Organization):

Doc 9284 AN/905 (Technical Instructions for the Safe Transport of Dangerous Goods by Air).

IATA - International Air Transport Association (International Air Transport Association):

DGR - Dangerous Goods Regulation (Dangerous Goods Regulation).

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**Main risk class or subclass:** 8

**Risk Number:** 80

**Packing group:** II

**Specific precautionary measures and conditions:** Not available

## 15. REGULATORY INFORMATION

**Specific safety, health and environmental regulations for the chemical:**

BRAZIL – MINISTRY OF LABOR AND EMPLOYMENT – NR 26.

BRAZIL – MINISTRY OF TRANSPORTATION – ANTT.

BRAZIL – ABNT NBR 14725

## 16. OTHER INFORMATION

**Important information, but not specifically described in the previous sections:**

This SDS was prepared based on current knowledge of the chemical product and provides information on protection, safety, health and the environment.

Please note that handling any chemical substance requires prior knowledge of its hazards by the user. It is the responsibility of the company using the product to train its employees and contractors regarding the potential risks posed by the product.

References: [ABNT] BRAZILIAN ASSOCIATION OF TECHNICAL STANDARDS NBR 14725.

[BRAZIL] BRAZIL. Ministry of Transport. National Land Transport Agency.

[ECHA] European Union. ECHA European Chemical Agency

Subtitles and abbreviations: ACGIH – American Conference on of Governmental Industrial Hygienists , CAS – Chemical Abstracts Service

[OSHA] - Occupational Safety and Health Administration

[NIOSH] - National Institute for Occupational Safety and Health

[NR] – Regulatory Standard – NR 15 Unhealthy Activities and Operations

[LT] – Tolerance Limit