

1. Product and Company Identification

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Product Name Potassium Hydroxide, Liquid 45-50%
Part Number RXSOL-25-1024-300

Company Details:....

RX MARINE INTERNATIONAL
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2. Composition / Information on ingredients

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Chemical Formula : KOH

CAS No : 1309-42-8

Mixture

Chemical Name	Cas No	Concentration (wt. %)	GHS-US classification
Potassium Hydroxide	1310-58-3	45 to 50	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Aquatic Acute 3, H402
Water	7732-18-5	Balance	Not classified

3. Hazards Identification

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Relevant identified uses of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) GHS label elements, including precautionary statements:

Signal Word	Danger
Hazard Statements	H290 May be corrosive to metals. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage H318 Causes serious eye damage.
Precautionary statements	H402 Harmful to aquatic life. P234 Keep only in original container. P264 Wash skin thoroughly after handling. P270 Do not eat, drink, or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/eye protection/face protection.

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse SKIN with water/ shower.

P305 + P361+ P338 +P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

P363 Wash contaminated clothing before reuse. P390 Absorb spillage to prevent material damage. P405 Store locked up. P406 Store in corrosive resistant stainless-steel container with a resistant inner liner.

P501 Dispose of contents/container in accordance with local/state/national regulations.

4. First Aid Measures

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General Information	Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.
Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Skin Contact	Immediately take off all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	If breathed in, move person into fresh air. If breathing is difficult, give humidified air. Give oxygen but only by a certified physician. If breathing stops, provide artificial respiration. Get medical attention immediately.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Give plenty of water to drink. Consult a physician.
Most important symptoms and effects, both acute and delaye	Toxic if swallowed. Harmful in contact with skin. Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling. Causes serious eye damage. Symptoms may include severe pain, blurred vision, redness, and corrosive damage. May cause respiratory irritation. Symptoms may include coughing, choking, and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Ingestion may cause severe burns to the mucous membranes of the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations and bleeding.
Indication of any immediate medical attention and special treatment needed	Immediate medical attention is required. Causes chemical burns. Treat symptomatically.

5. Fire-fighting Measures

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Flash Point	None
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Auto Ignition Temp	Non-combustible
Special Fire Fighting Procedures	Wear self-contained breathing apparatus and full protective clothing. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Unusual Fire/Explosion Hazards	Not combustible, however the product can react with metals such as aluminum, tin, zinc to form flammable and explosive hydrogen gas.
Fire-Fighting Measures	Potassium hydroxide does not burn or support combustion. Use extinguishing agents compatible with potassium hydroxide and appropriate for the surrounding fire. If water is used, care should be taken, since it can generate heat and cause spattering if applied directly to potassium hydroxide.

6. Accidental Release Measures

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For emergency responders	Wear protective clothing as described in Section 8 of this safety data sheet. Contact with walking surface may result in formation of slippery film/falling hazard.
Environmental Precautions	Do not discharge into drains, water courses or onto the ground.
Methods for Containment and Clean Up	Cleanup personnel must wear proper protective equipment. Completely contain spilled material with dikes, sandbags, etc., and prevent run-off into ground or surface waters or sewers. Recover as much material as possible into containers for disposal. Remaining material may be neutralized with dilute hydrochloric or acetic acid. Neutralization products, both liquid and solid, must be recovered for disposal.
Special spill response procedures	If a spill/release more than the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802). US CERCLA Reportable quantity (RQ): Potassium hydroxide (1,000 lbs. / 454 kg)
Waste Control Procedures	All disposals of this material must be done in accordance with federal, state, and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.
Reference to other sections	See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

7. Handling and Storage

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Precautions for safe handling	Storage tanks should be contained in a diked area that has sufficient capacity to hold the contents of the tank. This area should be free of potential contact with acids, organics, and reactive metals. Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials. Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.
Conditions for safe storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not freeze. Store in corrosion-resistant containers. Avoid contact with aluminum.
Incompatible materials	Acids; Water; Metals (e.g. tin, aluminum, zinc and alloys containing these metals)

8. Exposure controls and personal protection

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Principal Component: Potassium hydroxide, water

Occupational Exposure Limits:

Regulatory Limits:

Component	ACGIH TLV	OSHA PEL	15 Minute STEL	NIOSH IDLH
Inhalable Particulate	2 mg/m ³ (ceiling)	---	---	---

Control parameters

Exposure Control

Appropriate engineering controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.
Eye/face protection	The following protection should be worn: Chemical splash goggles and face shield.
Respiratory protection	Respiratory protection is required if the concentrations exceed the TLV. NIOSH-approved respirators are recommended. A self-contained breathing apparatus should be used in emergency situations or instances where exposure levels are not known. Seek advice from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.
Hand protection	Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers. Wear as appropriate: Neoprene; Polyvinylchloride; Viton; Butyl rubber; Nitrile rubber; Polyethylene. Unsuitable material: polyvinyl alcohol.
Other skin and body protection	Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact.
Other protective equipment	An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.
Hygiene measures	Do not breathe fumes or mists. Do not ingest. Avoid contact with skin, eyes, and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

9. Physical and chemical properties

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Appearance	Colorless, viscous liquid.
Colour	Colorless
Odour	No odor
Odor Threshold	Not Applicable
pH	>14
Boiling Point	45% KOH Solution: 132.2°C (270°F) 50% KOH Solution: 143.3°C (290°F)
Flash Point	No data available
Flammability	Not flammable
Explosive properties	Not flammable
Upper/lower flammability or explosive limits	Not flammable
Autoignition temperature	No data available

Decomposition temperature	No data available
Vapour pressure	45% KOH Solution: 39mm Hg at 140°F (60°C) 50% KOH Solution: 27 mm Hg at 140°F (60°C)
Density Liquid (pounds per gallon)	45% KOH Solution: 12.2 lbs./gal 50% KOH Solution: 12.5 lbs./gal
Molecular Weight	56.1
Physical State	Liquid at room temperature
Freeze/Solidification	45% KOH Solution: -28.8°C (-20°F) 50% KOH Solution: 8.9°C (48°F)
Specific Gravity (water = 1)	45% KOH Solution: 1.457 at 15.6°C (60°F) 50% KOH Solution: 1.516 at 15.6°C (60°F)
Vapor Density	No data available
Partition Coefficient: n-octanol/water	No data available

10. Stability and reactivity

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Reactivity	Not normally reactive. May be corrosive to metals. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat and open flame. Keep away from incompatibles. Keep container tightly closed when not in use. Avoid contact with water.
Incompatible materials	Acids; Water; Metals (e.g. tin, aluminum, zinc and alloys containing these metals); Halogenated compounds; Nitrogen compounds.
Hazardous decomposition products	Flammable hydrogen gas may be generated when KOH and certain metals react.
Hazardous Polymerization	Hazardous polymerization will not occur.

11. Toxicological information

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Information on likely routes of exposure:

Skin Contact	Major potential hazard - contact with the skin can cause severe burns with deep ulcerations. Contact with solution or mist can cause multiple burns with temporary loss of hair at burn site. Solutions may not cause immediate pain or irritation upon skin contact. Prolonged or repeated contact with dilute solutions may cause drying and cracking of skin and possible skin damage.
Skin Absorption	It can penetrate to deeper layers of skin and corrosion will continue until removed. The severity of injury depends on the concentration and the duration of exposure.
Eye Contact	Major potential hazard ☒ Liquid in the eye can cause severe destruction and blindness. These effects can occur rapidly affecting all parts of the eye. Mist or dust can cause irritation with high concentrations causing destructive burns.
Inhalation	By analogy with sodium hydroxide, inhalation of solution mist is expected to cause mild irritation at 2 mg/m ³ . More severe burns and tissue damage in the upper respiratory tract can occur at higher concentrations. Pneumonitis can result from severe exposures.
Ingestion	Ingestion of potassium hydroxide can cause severe burning and pain in lips, mouth, tongue, throat, and stomach. Severe scarring of the throat can occur after swallowing. Death can result from ingestion.

Information on toxicological effects:

Irritancy	A study with a 10% solution showed severe tissue damage when applied
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Sensitization	to skin for 4 hours.
Carcinogenicity	Not available One study was identified relative to potassium hydroxide and carcinogenicity. Mice painted with a 3 to 6% aqueous potassium hydroxide solution for 46 weeks developed skin tumors. This study was conducted in 1925 and the adequacy of the test and its design are unknown. No conclusions can be drawn from this study Potassium hydroxide is not listed on the IARC, OSHA or NTP carcinogen lists.
Teratogenicity & Mutagenicity	Not available
Reproductive Toxicology	Not available
Toxicological Synergism	Not available
Product Species Test Results:	
LD50	there are several different numbers published: 205 mg/kg (rat oral) (1975) 365 mg/kg (rat oral) (1975) 273 mg/kg (male rat oral) (1987) 273 mg/kg (rat oral) (1996)
LC50	Fresh water mosquito fish: 80.0 mg/L (24 Hours, static)

12. Ecological information

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Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available for this product.
Mobility in soil	Not available
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component .
Aquatic Toxicity	May cause shifts in water pH outside the range of pH 5 - 10. This change may be toxic to aquatic organisms.
Biodegradability	Not biodegradable (Biodegradability term pertains to an organic material capable of decomposition because of attack by microorganisms). However, potassium hydroxide will be neutralized by acidity present in natural environment.

13. Disposal considerations

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Waste Disposal Methods	Collect and reclaim or dispose in sealed containers at licensed waste disposal site if possible. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways, or ditches with chemical or used container. Dispose in accordance with all applicable federal, state, provincial and local regulations. Empty containers or liners may retain some product residues.
RCRA	If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state, and federal environmental agencies.

14. Transport information

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Shipping:

Usual Shipping Containers	Tank car, Tank truck, ABS Drums
Usual Shelf Life	Sealed containers, years.
Storage/Transport Temperatures	Ambient
Suitable Storage:	
Materials/Coatings	Steel, plastic, polyethylene (when dry).
Unsuitable	Aluminum or galvanized containers.
U.S. (D.O.T.)	
Proper Shipping Name	Potassium hydroxide, solution
Hazard Class	8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group	II - Medium Danger
UN/NA	UN1814
Reportable Quantity (RQ)	1000 lbs. (100% basis)
Marine pollutant	No
Poison Inhalation Hazard	No
Labels	8 - Corrosive
DOT Packaging Non-Bulk (49 CFR 173.xxx)	202
DOT Packaging Bulk (49 CFR 173.xxx)	242
DOT Special Provisions (49 CFR 172.102)	B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees Celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx)	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	30 L
DOT Vessel Stowage Location	A - The material may be stowed <input type="checkbox"/> on deck <input type="checkbox"/> or <input type="checkbox"/> under deck <input type="checkbox"/> on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	52 - Stow <input type="checkbox"/> separated from <input type="checkbox"/> acids
Other information	No supplementary information available.

15. Regulatory information

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SARA 302 Components	SARA 302: Not listed.
SARA 313 Components	SARA 313: Not regulated.
SARA 311/312 Hazards	EPCRA reporting quantities: TQ:10,000 pounds (100% KOH basis).
Massachusetts Right to Know Components	Potassium Hydroxide CAS : 1310-58-3
Pennsylvania Right to Know Components	Water CAS : 7732-18-5 Potassium Hydroxide CAS : 1310-58-3
New Jersey Right to Know Components	Water CAS : 7732-18-5 Potassium Hydroxide CAS : 1310-58-3
California Prop. 65 Components	This product does not contain any chemicals known to state of California to cause cancer, birth defects, or any other reproductive harm.
OSHA PSM TPQ	Not listed

Toxic Substances Control Act (TSCA)

CAS - 1310-58-3 is listed on the TSCA inventory.

Comprehensive Environmental Response Compensation Liability Act:
(CERCLA)

CAS - 1310-58-3 is listed on the CERCLA list.

16. Other information

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Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages.

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