G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

PRODUCT NAME:----------> Potassium Hydroxide Dry
(All Grades)

PRODUCT NUMBER(S):----------> 121400, 235900, 235910, 235930, 235940

TRADE NAMES/SYNONYMS:----> Potassium Hydroxide solid, KOH

CAS-No: 1310-58-3

RECOMMENDED USE: Manufacture of substances, Laboratory Chemicals
USES ADVISED AGAINST: No information available

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Company: G.J. CHEMICAL CO., INC.
Address: 40 VERONICA AVENUE
SOMERSET, NJ 08873
Telephone: 1-973-589-1450
Fax: 1-973-589-3072

Emergency Telephone Number
Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)
Corrosive to metals (Category 1)
Acute toxicity, Oral (Category 4)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H290 May be corrosive to metals.
H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H402 Harmful to aquatic life.

Precautionary statement(s)
P234 Keep only in original container.
P260 Do not breathe dust or mist.
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/ protective clothing/ 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): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + 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.
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 to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. INGREDIENTS

Ingredient	CAS No.	% by WT. Range	CLASSIFICATION
Potassium Hydroxide	1310-58-3	85-100	Corrosive to metals (Category 1)
	EC-No.215-181-3		Acute toxicity, Oral (Category 4)
	Index-No.019-002-00-8		Skin corrosion (Category 1A)
			Serious eye damage (Category 1)
			Acute aquatic toxicity (Category 3)
Potassium Carbonate	584-08-7	0-1.5	Acute toxicity, Oral (Category 4)
	EC-No.209-529-3		Skin irritation (Category 2)
			Eye irritation (Category 2A)
			STOT-SE (Category 3) Respiratory System

Water	**7732-18-5 EC-No.231-791-2**	**0-15**	**Not a hazardous substance or mixture.**

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4. FIRST-AID PROCEDURES

Emergency and First Aid Procedures:

Inhalation: Potassium Hydroxide Solid
FIRST AID-
Remove to fresh air. If not breathing give artificial respiration. Keep warm and quiet. Get medical attention immediately.

Eye Contact (Splash): Potassium Hydroxide Solid
***FIRST AID-* Immediately flush eyes with water for 15 minutes, holding eyelids apart to ensure flushing. Washing eyes within several seconds is essential to achieve maximum effectiveness. Remove contact lenses, if worn, after initial rinse. Take to a physician.**

Skin Contact(Splash): Potassium Hydroxide Solid
***FIRST AID-* Wash affected area with soap and water for 15 minutes. Remove contaminated clothing and shoes. Consult a physician if irritation persists.**

Ingestion: Potassium Hydroxide Solid
***FIRST AID-* Patient should be made to drink large amounts of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician or poison control center, treat symptomatically.**

Human dermal exposure: Regardless of concentrations, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with potassium hydroxide solutions of >1% can cause a high degree of tissue destruction.

5. FIRE FIGHTING MEASURES

Flash Point: N/A **LEL %:N/A**
UEL %:N/A

SUITABLE EXTINGUISHING MEDIA: Foam--> x CO2--> x Dry Chemical--> x

Water-fog--> x Other-->

CONDITIONS OF FLAMMABILITY: Not flammable or combustible.

ADVICE FOR FIREFIGHTERS: Shut off source. Water fog may be used to cool closed containers to prevent pressure build up. Wear full protective clothing including positive pressure self-contained breathing apparatus for confined spaces. Avoid direct contact of this product with water as this can cause a violent exothermic reaction.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Direct contact with water can cause a violent exothermic reaction. See reactivity section.

COMBUSTION PRODUCTS: Carbon Oxides and Potassium oxides

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES: Wear respiratory protection (see Section 8). Avoid dust formation. Minimize breathing dusts and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations. Keep all nonessential people away.

METHODS FOR CONTAINMENT AND CLEAN UP: Shut off valves, contain spill, prevent accumulation of dust, keep-out of water sources and sewers. Neutralize remaining traces with any dilute inorganic acid, e.g. Hydrochloric Acid. The spill area should then be flushed with water followed with a liberal covering of sodium bicarbonate. All clean up material should be removed and placed in approved containers. Spills in dirt or sand may be handled by removing the affected soil and placing in approved containers.

REPORTABLE QUANTITY (RQ): Potassium Hydroxide - 1000 POUNDS

The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the national response center must be notified immediately at (800) 424-8882 or (202) 426-2675 in the metropolitan Washington, D. C. area (40 CFR 302.6).

7. HANDLING AND STORAGE

PERSONAL PRECAUTIONARY MEASURES: Wear personal protective equipment as described in Section 8. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Use non-sparking tools to open or close containers.

HANDLING INFORMATION: Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation

should be taken into consideration before additional processing occurs. Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems.

CONDITIONS FOR SAFE STORAGE: Store large quantities only in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Do not store with incompatible materials. Keep containers closed when not in use. Storage class (TRGS 510): Non Combustible Solids

SPECIAL MIXING INSTRUCTIONS: Considerable heat is generated when product is mixed with water. Never add water to product. Always add product, with constant stirring, slowly to surface of lukewarm (80-100°F) water. Add product very gradually while stirring constantly. If product is added too rapidly, or without stirring and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in dangerous boiling and spattering, and a possible immediate and violent eruption of highly caustic solution. Note: 50lbs of product dissolved in 30 gal. of 90°F water will raise temperature of resulting solution to approximately 180°F. Never add more product than can be absorbed by solution while maintaining temperature below 200°F to prevent boiling and spattering. Product can react explosively with acids, aldehydes, and many other organic chemicals.

CONTAINER WARNINGS: Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas can be generated.

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

EXPOSURE GUIDELINES:

Ingredient	CAS No.	% by WT. Range	Exposure Limits
Potassium Hydroxide	1310-58-3	85-100	2mg/m3 TLV(ACGIH) 2mg/m3 Ceiling(OSHA)
Potassium Carbonate	584-08-7	0-1.5	N.E.

Water	**7732-18-5**	**0-15**	**N.E.**

Key: (PEL) = Permissible Exposure Limit OSHA
(TLV) = Threshold Limit Value OSHA & ACGIH
(STEL) = Short Term Exposure Limit ACGIH
(WEEL) = USA. Workplace Environmental Exposure Levels
(TWA) = Time Weighted Average
CAS = Chemical Abstracts Registry Number
IDLH = Immediate Danger to Life and Health
N.E. =None Established

EXPOSURE GUIDELINES: Consider the potential hazards of this material (Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

ENGINEERING CONTROLS: Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

RESPIRATORY PROTECTION: For vapor/mist concentrations in excess of ACGIH TLV an air supplied NIOSH/MSHA approved respirator with full face-piece and dust, fume and mist filter where dusts and mists may occur. For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH .

BODY CLOTHING: Use chemical resistant apron or other impervious clothing. Remove and wash contaminated clothing before reuse.

SKIN PROTECTION: 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. Nitrile Rubber chemical resistant gloves.

EYE/FACE PROTECTION> Use safety eyewear with splash guards or face shield. A safety shower and eyewash should be easily accessible to the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, COLOR AND ODOR: Potassium Hydroxide Dry is a white odorless solid.

Odor Threshold---------- > No data available
pH---------- > 13.5
Molecular weight---------- > 56.11amu
Melting/Freezing Point----------> 361 °C (682 °F)
Boiling Range (°C)----------> 1,320 °C (2,408 °F)
Specific Gravity---------- > 2.044@20°C
Vapor Pressure----------> 1mmHg@ 719 °C (1,326 °F)
Vapor Density (air=1)----------> No data available
Water Solubility---------- > 1,120 g/l - soluble
Partition Coefficient N-Octanol/water- > No data available
Evaporation Rate (Butyl Acetate=1)----> No data available
Flash Point----------> No data available
Upper Flammability Limit----------> No data available
Lower Flammability Limit----------> No data available
Auto-ignition Temperature----------> No data available
Decomposition Temperature----------> No data available
Viscosity----------> No data available
Explosive Properties----------> No data available
Oxidizing Properties---------- > No data available

10. STABILITY AND REACTIVITY INFORMATION

CHEMICAL STABILITY: Unstable ( ) Stable (X)
CONDITIONS TO AVOID: Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame.
POSSIBILITY OF HAZARDOUS REACTIONS: Production of hydrogen on contact with metals.
INCOMPATIBLE MATERIALS: Avoid direct contact with water. This product may be added slowly to water or acids with dilution and agitation to avoid a violent exothermal reaction. Avoid contact with aluminum, zinc, tin and alloys containing these metals. Do not mix with strong acids without dilution and agitation. In addition avoid contact with leather, wool, acids, organic halogen compounds, organic nitro compounds, with nitro-methane and other similar nitro compounds causes formation of shock-sensitive salts.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Oxides and Potassium Oxides

HAZARDOUS POLYMERIZATION: May occur ( ) Will not occur (X)

11. TOXICOLOGICAL INFORMATION

ACUTE HEALTH EFFECTS:

Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x

Effects of overexposure:

Eyes> On contact causes severe burns that result in damage to eye tissue.

Skin> Corrosive to all body tissues with which it comes in contact. The effect of local dermal exposure may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. A latent period may exist between exposure and sense of irritation.

Inhalation> Inhalation of spray, or mist may result in varying degrees of irritation or damage to the respiratory tract. Also may cause lung tissue damage, which could produce chemical pneumonia.

Ingestion> Causes severe burns to mucous membranes of the mouth, throat, esophagus, and stomach.

Chronic: The local effect may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, chronic inhalation of dust, spray, or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness. Regardless of concentration, the severity of damage and extent of its irreversibility increases with length of contact time. The latent period, following skin contact during which no sensation or irritation occurs varies with concentration.

Medical Conditions Aggravated by Exposure> Corrosive to all body tissues with which it comes in contact. Skin contact may aggravate an existing dermatitis.

ACUTE TOXICITY:

The effects of overexposure shown in Section II are based on acute toxicity profiles. Typical values are:

Ingredient	Oral LD50(Rat)	Skin LD50(Rabbit)	Inhalation LC50
Potassium Hydroxide	333mg/kg		
Potassium Carbonate	1870mg/kg		

MUTAGENIC EFFECTS: No data available

CARCINOGEN STATUS: 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, NTP, OSHA or ACGIH.

REPRODUCTIVE TOXICITY: No evidence of reproductive effects.

Specific target organ toxicity (STOT-SE)- single exposure (Globally Harmonized System): May cause respiratory irritation.
Specific target organ toxicity (STOT-RE)- repeated exposure (Globally Harmonized System): no data available

ASPIRATION HAZARD: No data available

ADDITIONAL INFORMATION:
RTECS: TT2100000

12. ECOLOGICAL INFORMATION

DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS
May be dangerous if it enters water intakes.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.

AQUATIC TOXICITY:
LC50 - Gambusia affinis (Mosquito fish) - 80 mg/l - 96 h

Any damaging effects are mostly a consequence of the increase in pH. The upper pH limit tolerated by most freshwater fish is 8.4; the pH must generally be greater than 9 before the aqueous environment becomes lethal for fully developed fish. Freshwater algae are destroyed above pH 8.5. Concentrations of 20 to 100 mg/L have been reported to kill salmon, trout, carp and crayfish.

WATERFOWL TOXICITY: No data available

PERSISTANCE AND DEGRADABILITY: The pH effect of potassium hydroxide in water is naturally reduced by the absorption of atmospheric carbon dioxide. This reduction is also effected by dilution with water and by the natural acidity of a given body of water. There is no degradation of potassium hydroxide in waters, only loss by absorption or chemical neutralization.

BIOACCUMULATION: No data available

BIOLOGICAL OXYGEN DEMAND (BOD): No data available

FOOD CHAIN CONCENTRATION POTENTIAL: None noted

13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS: Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. Incinerate under controlled conditions in a permitted facility.

CONTAMINATED PACKAGING: Dispose of as unused product.

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262

14. TRANSPORT INFORMATION

USDOT Shipping Name----------> Potassium Hydroxide, solid
USDOT Hazard Classification----------> 8
USDOT I.D. Number----------> UN1813
USDOT Label----------> 8
USDOT Package Code----------> II
Emergency response Guide----------> 154
Marine Pollutant----------> No

IMDG
UN number: 1813 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: Potassium Hydroxide, solid

IATA
UN number: 1813 Class: 8 Packing group: II
Proper shipping name: Potassium Hydroxide, solid

15. REGULATORY INFORMATION

SARA TITLE III (Superfund Amendment and Reauthorization Act)
SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355)- Not Listed
SECTION 313: Toxic Chemicals Listing (40 CFR 372.65)- Not Listed
SECTION 311/312: Hazard Categorization (40 CFR 370)- Acute Health

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4)- Listed
Potassium Hydroxide CAS 1310-58-3
Reportable Quantity - 1,000 pounds.
SECTION 101(14) Reportable Quantity: 1,000 lbs

Massachusetts Right To Know Components
Potassium hydroxide CAS-No.1310-58-3

Pennsylvania Right To Know Components
Potassium hydroxide CAS-No.1310-58-3

New Jersey Right To Know Components
Potassium hydroxide CAS-No.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.

TSCA (Toxic Substance Control Act)

Potassium hydroxide CAS-No.1310-58-3 is listed on the TSCA Inventory.

16. OTHER INFORMATION:

HMIS (Hazardous Materials Identification System)
Hazard Rating:
4-Extreme
3-High
2-Moderate
1-Slight
0-Insignificant

NFPA RATINGS (SCALE 0-4):	**Health=3**	**Fire=0**	**Reactivity=1**	
HMIS RATINGS (SCALE 0-4):	**Health=3**	**Fire=0**	**Reactivity=2**	**PPE=X**

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Prepared by----------------> T. G Fenstermaker, Jr.

Acronyms:
ACGIH - American Conference of Governmental Industrial Hygenists
AIHA - American Industrial Hygiene Association

ANSI	-	American Nation Standards Institute
API	-	American Petroleum Institute
CERCLA	-	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	-	U.S. Department of Transportation
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information System