SAFETY DATA SHEET

Preparation Date: 3/13/2015 **Revision Date:** 3/13/2015 **Revision Number:** G1

Product identifier

Product code: P1315
Product Name: POTASSIUM HYDROXIDE, PELLETS, REAGENT, ACS

Other means of identification

Synonyms: Caustic Potash
CAS #: 1310-58-3
RTECS # TT2100000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Electroplating; photoengraving & lithography; printing inks; in analytical chemistry & in
organic synthesis; manfufacturing of liquid soap; pharmaceutical aid (as alkalizing agent); mordant for woods; absorbing carbon dioxide; mercerizing cotton; paint & varnish removers.
Principle uses of KOH include chemicals, particularly the production of potassium carbonate and potassium permaganate; pesticides, fertilizers, and other agricultural products; soaps and detergents; scrubbing and cleaning operations, e.g., industrial gases; dyes and colorants; and rubber chemicals.

Uses advised against No information available

Supplier:
Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Corrosive to metals	Category 1

Label elements

Danger

Hazard statements
Toxic if swallowed
Causes severe skin burns and eye damage
May be corrosive to metals

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Reacts with water to evolve heat

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
Specific treatment (see .? on this label)
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see .? on this label)
Absorb spillage to prevent material damage
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.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
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.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in corrosive resistant/ .? container with a resistant inner liner

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Potassium Hydroxide 1310-58-3	1310-58-3	100	*

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician immediately.

Eye Contact: Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If victim is conscious, give water or milk. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Severe skin and eye irritation or burns. Causes digestive (gastrointestinal) tract irritation. May cause gastrointestinal (digestive) tract burns. May cause abdominal pain, nausea, vomiting, diarrhea. Causes chemical burns to the respiratory tract. May cause inflammation of the lungs (pneumonitis). May cause pulmonary edema. Coughing. Dyspnea (Shortness of breath and difficulty breathing).

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products: Sodium oxides

Specific hazards: No information available..

Special Protective Actions for Firefighters

Specific Methods: No information available.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Use appropriate tools to put the spilled solid in a suitable waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Use only in area provided with appropriate exhaust ventilation. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Deliquescent. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store in a segrated and approved area. Store away from incompatible materials.

Incompatible Materials:
Oxidizing agents. Acids. Metals. Powdered metals. Organic materials. Water. Alcohols. Halogens. halogenated hydrocarbons. Acid anhydrides. Acid chlorides. Nitro compounds.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Potassium Hydroxide - 1310-58-3	None	2 mg/m^3 Ceiling	2 mg/m^3 Ceiling	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Potassium Hydroxide - 1310-58-3	2 mg/m^3 Ceiling	2 mg/m^3 Ceiling	2 mg/m^3 Ceiling	2 mg/m^3 Ceiling

Australia and Mexico

Components	Australia	Mexico
Potassium Hydroxide 1310-58-3	None	None

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles. Face-shield.

Skin and body protection: Chemical resistant protective suit. Gloves. boots.

Respiratory protection: Wear respirator with dust filter..

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:
Solid.

Appearance:
Pellets. Flakes.

Color:
White.

Odor:
Odorless.

Taste
No information available

Formula:
KOH

Molecular/Formula weight:
56.11

Flash point (°C):
No data available

Flashpoint (°C/°F):
No information available.

Flash Point Tested according to:
Not available

Lower Explosion Limit (%):
No information available

Upper Explosion Limit (%):
No information available

Autoignition Temperature (°C/°F):
No information available

pH:
13 (1% solution)

Melting point/range(°C/°F):
380°C/716°F

Boiling point/range(°C/°F):
No information available

Decomposition temperature(°C/°F):
1384 °C/2523°F

Bulk density:
No information available

Specific gravity:
2.044

Vapor pressure @ 20°C (kPa):
No information available

Density (g/cm3):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

Partition coefficient (n-octanol/water):
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Easily soluble in water
Insoluble in diethyl ether

10. STABILITY AND REACTIVITY

Reactivity

10. STABILITY AND REACTIVITY

Deliquescent.
When dissolved in water or alcohol or when the solution is treated with acid, much heat is generated.
Reacts violently with acids, halogens, halogenated hydrocarbons, maleic anhydride, organic anhydrides, isocyanates, alkylene oxides, epichlorhydrin, aldehydes, alcohols, gylcols, phenols, cresols, caprolactum solution.
Also incompatible with nitro compounds (nitrobenzene, nitromethane, nitrogen trichloride), organic materials, acid anhydrides, acid chlorides, magnesium, peroxidized tetrahydrofuran, trichlorethylene, chlorine dioxide, maleic dicarbide, sugars.
Solid potassium hydroxide in contact with moisture or water may generate sufficient heat to ignite combustible materials.
When wet attacks metals such as aluminum, tin, lead, and zinc.
Violent reaction or ignition under appropriate conditions with acids, alcohols, p-bis(1,3-dibromoethyl) benzene, cyclopentadiene, germanium, hyponitrous acid, maleic anhydride, nitroalkanes, 2-nitrophenol, potassium peroxodisulfate, sugars, 2,2,3,3-tetrafluoropropanol, thorium dicarbide.
Molten ortho -nitrophenol reacts violently with potassium hydroxide. When potassium hydroxide and tetrachloroethane are heated, a spontaneously flammable gas, chloroacetylene, is formed.
When phosphorus is boiled in a solution of potassium hydroxide, phosphine gas is evolved which is spontaneously flammable.
1,2-Dichloroethylene and Potassium hydroxide reaction produces chloroacetylene which is spontaneously flammable in air.
Potassium Persulfate and a little Potassium hydroxide and water will ignite.
When wet, attacks metals such as aluminum, tin, lead, and zinc, producing flammable hydrogen gas.
When heated to decomposition it emits toxic fumes of K2O.
Potentially explosive reaction with bromoform + crown ethers, chlorine dioxide, nitrobenzene, nitromethane, nitrogen trichloride, peroxidized tetrahydrofuran, 2,4,6-trinitrotoluene.
Reaction with ammonium hexachloroplatiate(2-) + heat forms heat sensitive explosive product.
Potassium hydroxide will cause explosive decomposition of maleic anhydride.
Detonation will occur when potassiuim hydroxide is mixed with n-methyl-nitroso urea and methylene chloride.
Nitrogen trichloride explodes on contact with potassium hydroxide.
WHEN HEATED, TRICHLOROETHYLENE & POTASSIUM HYDROXIDE FORM EXPLOSIVE MIXT OF DICHLOROACETYLENE.
NITROGEN TRICHLORIDE EXPLODES ON CONTACT WITH CONCENTRATED POTASSIUM HYDROXIDE.

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Exposure to moisture. Exposure to moist air. Incompatible materials.

Incompatible Materials: Oxidizing agents. Acids. Metals. Powdered metals. Organic materials. Water. Alcohols. Halogens. halogenated hydrocarbons. Acid anhydrides. Acid chlorides. Nitro compounds.

Hazardous decomposition products: No information available

Other Information

Corrosivity: Extremely corrosive in presence of aluminum, brass, and zinc.
Slightly corrosive in presence of copper, of stainless steel(304).
Non-corrosive in presence of stainless steel(316).

Special Remarks on Corrosivity: Severe corrosive effect on brass and bronze.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Eyes. Skin. Ingestion. Inhalation.

Acute Toxicity

Component Information

Potassium Hydroxide - 1310-58-3

LD50/oral/rat = 284 mg/kg Oral LD50 Rat (LOLI)
273 mg/kg (RTECS)
214-429 mg/kg (European Commission IUCLID dataset)
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No infomation available
Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 214mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:	Severe skin irritation. Causes skin burns.
Eye Contact:	Severe eye irritation. Causes eye burns. May cause permanent injury.
Inhalation	Causes severe irritation and burns of the respiratory tract and mucous membranes, coughing, difficulty breathing. Irritation may lead to chemical pneumonitis, and pulmonary edema.
Ingestion	Toxic if swallowed. May cause severe and permanent damage to the digestive tract. Causes severe irritation and burns of the gastrointestinal (digestive) tract with abdominal pain, vomiting, bloody diarrhea, cardiovascular collapse, and possible death. May cause perforation of the digestive tract.
Aspiration hazard	No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated skin contact with dilute solutions of potassium hydroxide can cause dermatitis.
Prolonged or repeated eye contact with dilute solutions can cause conjunctivitis.
Prolonged or repeated Inhalation can produce chronic productive cough, and shortness of breath.

Sensitization: No information available

Mutagenic Effects: May affect genetic material
Cytogenic analysis - Hamster ovary 12mmol/L (Registry of Toxic Effects of Chemical Substances)

Carcinogenic effects: Not considered carcinogenic

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Potassium Hydroxide	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: Skin. Respiratory system. Eyes.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Potassium Hydroxide	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Subsidiary Risk:
Packing Group: II
ERG No: 154
Marine Pollutant No data available
DOT RQ (lbs): No information available
Symbol(s): R4

TDG (Canada)

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

ADR

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid

14. TRANSPORT INFORMATION

Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

IATA

UN-No: UN1813
Proper Shipping Name: Potassium hydroxide, solid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 8L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Potassium Hydroxide	Present	Present KE-29139	Present	Present (1)-369	Present	Present	Present 215-181-3

U.S. Regulations

Potassium Hydroxide

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List Present
RI RTK - Hazardous Substances List: Present
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
1000 lb RQ
100 lb RQ
Louisana Reportable Quantity List for Pollutants: 1000lbfinal RQ
454kgfinal RQ
California Directors List of Hazardous Substances: Present
FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 184.1631

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Potassium Hydroxide	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting *de minimis*
Potassium Hydroxide	1000 lb final RQ 454 kg final RQ	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Potassium Hydroxide	Not Applicable	Not Applicable

Canada

WHMIS hazard class:
D1B Toxic materials
E Corrosive material

Potassium Hydroxide

D1B E
E 0.056% in aqueous solution, 0.11%, 0.56% in aqueous solution, 2.5%, 2.8%, 5.6% in aqueous solution, 25%, 28%, 33.3%, 40%, 50% in aqueous solution

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Potassium Hydroxide	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Potassium Hydroxide	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting
Potassium Hydroxide	Not listed	Not listed

EU Classification

R-phrase(s)
R22 - Harmful if swallowed.
R35 - Causes severe burns.

S -phrase(s)
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 1/2 - Keep locked up and out of the reach of children.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
Potassium Hydroxide	Xn; R22 C; R35	No information	S1/2 S26 S36/37/39 S45

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
C - Corrosive.
Xn - Harmful.

C

Xn

16. OTHER INFORMATION

Preparation Date: 3/13/2015
Revision Date: 3/13/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet