



Material Safety Data Sheet


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Section 1 - Product and Company Identification

Product name : Potassium Hydroxide	
Other names : KOH 、caustic potash liquid 、liquid potash	
Product use : laboratory reagent	
Supplier's name : San Fu Chemical Co., Ltd., Shan Hua Plant	
Supplier's address : 340 Hsiao Hsin Li, Shan Hua Town, Tainan Hsien, Taiwan, R.O.C.	
Supplier's phone : 06-5837608	Emergency phone : 06-5837608
FAX. : 06-5839498	

Section 2 - Hazards Identification

Classification :
<ol style="list-style-type: none">1. Acute Toxicity Category III (skin)2. Corrosive to Metals Category I3. Skin Corrosion/Irritation Category I4. Serious Eye Damage/Eye Irritation Category I
The Most Important Hazards and effect
Label element : Skull and crossbones, Corrosive

<ul style="list-style-type: none">■ Hazard symbol :■ Signal word : Danger
Hazard statement :
<ol style="list-style-type: none">1. toxic if swallowed2. May corrosive metal3. cause sever skin burn4. eye damage
Precautionary statement :
<ol style="list-style-type: none">1. If contact with eyes, flush with plenty of water. Get medical attention immediately.2. Remove contaminated clothes immediately.3. Wear appropriate protective gear, including clothing, gloves, chemical safety goggles and/or a full face shield.
Others Hazard : --

Section 3 - Composition/Information On Ingredients

Chemical name : Potassium Hydroxide
Synonyms : Caustic potash, Lye, Potassium hydrate
CAS No. : 1310-58-3
Ingredient contributing to the hazard(%) : 45%

Section 4 - First Aid Measures

The First-aid Information :
<ul style="list-style-type: none">■ Inhalation :



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<ol style="list-style-type: none">1. Move to fresh air.2. If not breathing, give Artificial respiration by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (CPR), avoid mouth to mouth.3. Get medical attention immediately. <p>■ Skin Contact :</p> <ol style="list-style-type: none">1. Avoid contact with this material. Wear the impermeable gloves if necessary.2. Immediately flush contaminated areas with water for at least 20 minutes.3. Remove contaminated clothing, shoes, and leather product.4. Clean thoroughly the contaminated clothing before reuse or discard.5. Discard the contaminated leather goods. Do not reuse.6. Get medical attention immediately. <p>■ Eye Contact :</p> <ol style="list-style-type: none">1. Immediately flush eyes with water for at least 20 minutes. Forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues.2. Avoid contaminated unaffected area.3. Flush repeatedly if still feel the irritation.4. Get medical attention immediately. <p>■ Ingestion :</p> <ol style="list-style-type: none">1. Get medical attention immediately.2. Never give anything by mouth to an unconscious or convulsive person.3. Rinse mouth thoroughly.4. If swallowed, don't induce vomiting.5. If the patient is conscious, drink about 240~300 ml water.6. If vomiting occurs spontaneously, make the patient lean forward, to avoid inhaling the vomitus.
The Most Important Symptoms and Hazardous Effects : Cause severe irritation and burns.
Protection of First-aiders : <ol style="list-style-type: none">1. Do not enter the hazard area if not wear the full protective gear.2. First aid in safe zone.
Notes to a Physician : <p>In case of eye contact or inhalation, flush repeatedly and drink water.</p>

Section 5 - Fire Fighting Measures

Extinguishing Media : <p>Alcohol foam, chemical powder, carbon dioxide, or water spray. When fight with large fire, use foam or water spray.</p>
Specific Hazards when Fire-fight : tiny
Specific Fire-fighting Procedure : <ol style="list-style-type: none">1. Move away the containers if safe.2. Use water spray to cool fire-exposed containers.3. Stay away from the ends of tanks.
Specific Protection of Firefighters : <p>As in any fire, wear a self-contained breathing apparatus in pressure demand, MSHA/NIOSH (approved or equivalent), anti-dust and anti-splash goggles, protective gloves.</p>



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Section 6 - Accidental Release Measures

Personal Precautions : 1. Restrict access to area until clean up. 2. Ensure clean up is conducted by trained personnel only. 3. Must wear proper personal protection equipment.
Environmental Precautions : 1. Well-ventilated the contaminated area. 2. Isolate from ignition sources. 3. Notify the occupational safety health unit or environmental protection unit.
Methods for Cleaning up : 1. Restrict access to area until clean up. 2. Ensure clean up is conducted by trained personnel only. 3. Well-ventilated the contaminated area. 4. Dry potassium hydroxide can be recycle or disposal. 5. After neutralized, flush away the micro-residue with water 6. Absorb with dry earth or sand. Dike if necessary. 7. Recycle or dilute with water, and then neutralize the residue carefully with a dilute solution of acetic acid or hydrochloric acid. 8. Prevent entry into sewers.

Section 7 - Handling and Storage

Handling : 1. Careful add water while mixing, avoid splashing. 2. This chemical is the alkalinity liquid; the staff should receive proper training and inform the risk and safety handling method. 3. Clearly label the container. 4. Use local exhaust ventilation and process enclosure if necessary, to control airborne dust and mist. 5. Use corrosion-resistant ventilation system; separate from other exhaust ventilation systems.
Storage : 1. Limited storage in the leak-proof containers. 2. Containers should be kept closed and plainly labeled. 3. Store in cool, ventilated place, and keep dry. Separate with other work area. 4. Stay away from any incompatible materials. 5. Consider use of anti-corrosion equipments, lighting, and ventilation system. 6. Label the container and keep the container closed while not in use. 7. Restrict access. 8. Separate from water, acids, and metals.

Section 8 - Exposure Controls & Personal Protection

Engineering measures :			
Use adequate general ventilation system			
Control parameters			
TWA	STEL	Ceiling	Biological standards
2mg/m ³	--	--	--
Personal protective equipment :			



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- Respiratory Protection : Different respiratory systems depending on the expose concentration.
- Hand Protection : Protective gloves
- Eye Protection : chemical splash goggles/mask. Emergency shower should be available.
Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from any body areas likely to be exposed. The actual determination of what constitutes an adequate quick drench facility depends on the specific circumstances. In certain instances, a deluge shower should be readily available, whereas in others, the availability of water from a sink or hose could be considered adequate
- Skin and Body Protection : chemical protect suit.

Hygiene measures :

1. Remove contaminated clothes, clean thoroughly before reuse or disposal. Must advise the danger to the laundry worker.
2. Wash hand thoroughly after handling this substance.
3. Maintain a clean work environment.

Section 9 - Physical & Chemical Properties

Appearance : liquid	Odor : odorless
Color : white to yellow	Melting Point: --
pH value : 13.5 (0.1 Molar aq soln)	Boiling point/boiling range : 102~143°C
Flammability: --	Flash point : --
Decomposition temp : --	Test method : --
Auto ignition temp : --	Explosion properties : --
Vapor pressure : --	Vapor density : --
Density : 1.09~1.52(15.6%)	Solubility : soluble in water
log Kow : --	Evaporation Rate : --

Section 10 - Stability & Reactivity Data

Stability : May react with water to release heat.

Possible hazardous reactions under specific conditions :

1. Above 84°C it reacts with reducing sugars to form poisonous carbon monoxide gas.
2. Violent, exothermic reaction with water.
3. Potentially explosive reaction with bromoform + crown ethers, chlorine dioxide, nitrobenzene, nitromethane, nitrogen trichloride, peroxidized tetrahydrofuran, 2,4,6-trinitrotoluene.
4. Reaction with ammonium hexachloroplatinate(2-) + heat forms a heat-sensitive explosive product.
5. Violent reaction or ignition under the 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.



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6. Molten ortho nitrophenol reacts violently with potassium hydroxide (commercial 85% pellets). When potassium hydroxide & tetrachloroethane are heated, a spontaneously flammable gas, chloroacetylene, is formed.
7. 1,2-dichloroethylene & potassium hydroxide reaction produces chloroacetylene, which is ... Spontaneously flammable in air.
8. When phosphorus is boiled with soln of ... Potassium hydroxide, phosphine gas is evolved which is spontaneously flammable.
9. Piece of potassium hydroxide causes liquid chlorine dioxide to explode. A reaction between n-nitrosomethylurea & potassium hydroxide in n-butyl ether resulted in an explosion due to formation of diazomethane.

Conditions to avoid :

1. Avoid heat, flame, spark, or any source of ignition.
2. Danger gas may accumulate in confined space.
3. If contact with flammable materials, may cause fire or explosion.

Materials to avoid :

1. acid, flammable materials, metal, deoxidizers, halocarbons, oxidizers, metal salts

Hazardous decomposition products :

1. When heated to decomposition it emits toxic fumes of K_2O .

Section 11 - Toxicological Information

Route of exposure : skin, inhalation, eye, ingestion

Symptoms : coughing, asphyxia, burns with mucous membrane, low blood pressure, weak, quick pulse, pneumonia, pain in chest, difficulty in breathing, cyanosis, dizziness, burn in skin and eyes.

Immediate Toxicity :

1. Skin : Causes skin burns. May cause deep, penetrating ulcers of the skin. Prolonged or repeated skin contact may cause dermatitis. Inhalation : Harmful if inhaled. Irritation may lead to chemical pneumonitis and pulmonary edema. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.
2. Eye : Causes severe eye burns. May cause irreversible eye injury. Contact may cause ulceration of the conjunctiva and cornea. Eye damage may be delayed.
3. Ingestion : Ingestion of alkali is followed by severe pain, vomiting, diarrhea, & collapse. The vomitus contains blood and desquamated mucosal lining. If death does not occur in the first 24 hours, the patient may improve for 2-4 days and then have a sudden onset of severe abdominal pain, board-like abdominal rigidity, and rapid fall of blood pressure indicating delayed gastric or esophageal perforation. Esophageal stricture can occur weeks, months, or even years later to make swallowing difficult. Carcinoma is a risk in later life.
4. Ingestion :
 - LD_{50} : 273 mg/kg (Rat, Oral)
 - LC_{50} : --

Specific effects :

1. Prolonged or repeated eye contact may cause conjunctivitis.
2. LIQUID CORROSIVES - With highly concentrated liquids (30% sodium hydroxide) esophageal burns may occur in up to 100% of patients, even after accidental ingestion.
3. Serious burns are less likely if the pH is less than 11.5. Injury is greater with large exposures



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- and high concentrations.
4. More recent series of caustic ingestions (mixed liquid and solid) in children report incidences of significant esophageal burns from 5% to 35%. Adults with deliberate ingestions are more likely to develop significant esophageal burns (30% to 80%).

Section 12 - Ecological Information

Ecotoxicology :
■ LC ₅₀ (fish) : 165000 µg/L@24 hour(s) (Poecilia reticulata)
■ EC ₅₀ (Aquatic Invertebrates) : TLm Mosquito fish 80 ppm/24 hr fresh water.
■ Bioconcentration factor (BCF) : --
Persistence and degradability :
■ Half-Life (Air) : --
■ Half-Life (Water surface) : --
■ Half-Life (Groundwater) : --
■ Half-Life (Soil) : --
Bioaccumulative potential : --
Mobility in soil : --
Other adverse effects : --

Section 13 - Disposal Considerations

Methods of disposal :
1. Land treatment or burial (sanitary landfill) disposal practices. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.
2. Neutralization & discharge to sewer: Carefully dissolve in water and neutralize with dilute acetic acid. Flush to sewer with lots of water, regulations permitting or dispose of through a licensed contractor. Consider use of waste caustic for neutralizing plant acid wastes.

Section 14 - MSDS Transport Information

UN classification number : UN1813
Proper D.O.T Shipping Name : POTASSIUM HYDROXIDE, SOLID
Hazard Class : 8
Packing Group : II
Marine pollution : Not applicable
Specific precautionary transport measures and conditions : --

Section 15 - Regulatory Information

Regulations : Labor Safety and Health Facilities Regulations, Toxic Chemical Substances Labeling and Safety Data Regulations, Road Traffic Safety Regulations, Industrial Waste Storage and Disposal Regulations, and Facility Standards.



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Section 16 - Other Information

Literature references	1. RTECS Database, TOMES CPS CD-ROM, Vol.71, 2007 2. ChemWatch Database, 2007-1 3. OHS MSDS Databases, 2007 4. HSDB Database, TOMES CPS CO-ROM, Vol.71, 2007		
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Issue date	2010/12/24	Revision	2
Remarks	Symbols Explanations: "--" No information is available at this time. "/" Not applicable to this substance.		
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