Mettler-Toledo, Inc.

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Material Safety Data Sheet

EMERGENCY NUMBERS:

(USA) CHEMTREC : 1(800) 424-9300 (24hrs)
(CAN) CANUTEC : 1(613) 996-6666 (24hrs)

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: B-2 E		TDG CLASS: 3 8 PIN: UN2924 PG: II
		

Section I. Product Identification and Uses

Product name	POTASSIUM HYDROXIDE 0.1N IN ISOPROPANOL
Chemical formula	Not applicable.
Synonyms	C-6540
Material uses	For laboratory use only.

CI#	Not available.
CAS#	Not applicable.
Code	
Formula weight	Not applicable.
Supersedes	

Section II. Ingredients

Name	CAS #	%	TLV
1) ISOPROPANOL	67-63-0	>99	Exposure limits: ACGIH TWA 200 ppm (491.6 mg/m3); STEL 400 ppm (983 mg/m3)
2) POTASSIUM HYDROXIDE	1310-58-3	0.1-<1	Exposure limits: ACGIH Ceiling limit 2 mg/m3

Toxicity values of the hazardous ingredients

POTASSIUM HYDROXIDE:
ORAL (LD50): Acute: 273 mg/kg (Rat).
2-PROPANOL:
ORAL (LD50): Acute: 6410 mg/kg (Rabbit). 3600 mg/kg (Mouse). 5045 mg/kg (Rat).
ORAL (LDLo): Acute: 3570 mg/kg (Human).
DERMAL (LD50): Acute: 12800 mg/kg (Rabbit).
VAPOR (LC50): Acute: 16000 ppm (Rat) (8 hour(s)).

Section III. Physical Data

Physical state and appearance / Odor	Colorless liquid with alcohol odor.
pH (1% soln/water)	Not available.
Odor threshold	40-200 ppm
Percent volatile	100% (V/V IPA)
Freezing point	-86 to -89.5°C (Isopropanol)
Boiling point	82 to 83°C (Isopropanol)
Specific gravity	0.78 (Water = 1) (Isopropanol)
Vapor density	2.1 (Air = 1) (Isopropanol)
Vapor pressure	>33 mm Hg @ 20°C
Water/oil dist. coeff.	0.34
Evaporation rate	3 (n-Butyl acetate = 1).
Solubility	Miscible in water.

Section IV. Fire and Explosion Data

Flash point	OPEN CUP: (Tag open cup) 11°C (ISOPROPANOL).
Flammable limits	LOWER: 2% (ISOPROPANOL) UPPER: 12.7% (ISOPROPANOL)
Auto-ignition temperature	399°C (Isopropanol)
Fire degradation products	Oxides of carbon and potassium.
Fire extinguishing procedures	Use DRY chemical, carbon dioxide, or alcohol-resistant foam. Water may be ineffective to extinguish fires. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Disperse vapors with water spray if they have not ignited. Cool containing vessels with flooding quantities of water.
Fire and Explosion Hazards	Flammable liquid. Vapors formed from this product may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from handling point. Vapor forms explosive mixture with air. Container explosion may occur under fire conditions or when heated. Contact with oxidizers may cause fire and/or explosion. Sensitive to static discharge. Not expected to be sensitive to mechanical impact. Emits toxic fumes under fire conditions.

Section V. Toxicological Properties

Routes of entry	Ingestion and inhalation. Eye contact. Skin contact. Skin absorption.
Effects of Acute Exposure	Harmful by ingestion, inhalation, or skin absorption. Corrosive. Target organs: cardiovascular system, gastrointestinal system, kidneys, eyes, skin, nerves, respiratory system. 2000 ppm (ISOPROPANOL) is immediately dangerous to life or health.
Eye	Vapors, liquids and mists are extremely corrosive to the eyes. Brief contact of the vapors will be severely irritating. Brief contact of the liquid or mist will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.
Skin	Causes severe burns. Readily absorbed through skin.
Inhalation	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, laryngitis, dyspnea, headache, nausea, and vomiting. Exposure to high vapor concentrations of IPA may cause central nervous system depression (headache, drowsiness, nausea, vomiting, stuper, dizziness, incoordination, unconsciousness, etc...), coma and death possible. May have anesthetic effect with prolonged use. May cause delayed lung injury.
Ingestion	Burns in mouth, pharynx and gastrointestinal tract. May cause headache, nausea, dizziness, vomiting, fatigue, abdominal pain, diarrhea, gastritis and central nervous system depression. Lethal dose for humans is estimated at 131 grams IPA and 5 g KOH. If a small amount of the liquid is aspirated into the lungs, very severe lung damage or death could result.

Section V. Toxicological Properties

Effects of Chronic Overexposure	IPA: Repeated or prolonged skin contact can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged or repeated exposure to high concentrations can produce severe or fatal central nervous system depression. Animal: liver and spleen damage. Detected in maternal milk in human. Potassium hydroxide: Repeated inhalation can produce varying degree of respiratory or lung damage. Repeated skin exposure can produce dermatitis. Potassium hydroxide has been implicated as a cause of cancer of the esophagus in individuals who have ingested it. The cancer may develop 12 to 42 years after the ingestion incident. Similar cancers have been observed at the sites of severe thermal burns. These cancers may be due to tissue destruction and scar formation rather than the potassium hydroxide. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated. Mutagenic effects: Not available. Teratogenic effects: Not available. Toxicity of the product to the reproductive system: Not available. Medical conditions which may be aggravated: Individuals with preexisting diseases of the skin, eye, or respiratory system may be more susceptible to the toxicity of overexposure to this product.

Section VI. First Aid Measures

Eye contact	Immediate first aid is needed to prevent eye damage. Washing within 1 minute is essential to achieve maximum effectiveness. Immediately flush eyes with copious quantities of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention.
Skin contact	Immediately flush skin with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reusing. Discard contaminated leather articles such as shoes and belt.
Inhalation	Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.
Ingestion	DO NOT induce vomiting. Guard against aspiration into lungs. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus.

Section VII. Reactivity Data

Stability	Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, contamination.
Hazardous decomp. products	Not available.
Incompatibility	Oxidizing agents, acids, trinitromethane, hydrogen peroxide, phosgene, halogens, acid anhydrides, oleum, iron salts, sulfuric acid, hydrogen-palladium, permanganates, potassium t-butoxide, nitroform, acetaldehyde, barium perchlorate, ethylene oxide, hexamethylene diisocyanate, hypochlorous acid, isocyanates, perchloric acid, permonosulfuric acid, halogenated compounds, amines, alkalis, aldehydes, ketones, organic materials, peroxides, organohalogen compounds, nitro and chloro organic compounds, acid chlorides, chlorohydrin, maleic anhydride, nitromethane, nitroethane, nitropropane, nitroparaffins, phosphorus, phosphorus oxides, 1,2-dichloroethylene, chlorosulfonic acid, trichloroethylene, chloroform, tetrachlorobenzene, chlorine trifluoride, chloronitrotoluenes, tetrahydrofuran, carbides, chlorides, chlorine dioxide, o-nitrophenol, tetrachloroethane, potassium persulfate, nitrogen trichloride, azides, n-nitrosomethylurea. Acroleine, acrylonitrile, acetaldehyde (Violent polymerization). Reacts with most common metals to produce hydrogen (magnesium, copper, aluminum, zinc, lead, tin, brass, bronze, etc...).
Reaction Products	Will corrode a wide variety of metals. Contact with nitro organic compounds may form shock sensitive materials. Trichloroethylene will react to form dichloroacetylene which is spontaneously flammable. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Spill and leak	Evacuate the area. Eliminate all sources of ignition and ensure that all handling equipment is electrically grounded. Stay upwind: Keep out of low areas. Dyke the area with sand or a natural barrier. Absorb on sand or vermiculite and place in a closed container for disposal. Use non-sparking tools. Transport outdoors. Ventilate area and wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material. Runoff to sewer may create fire or explosion hazard.
Waste disposal	Burn in a chemical incinerator equipped with an after burner and scrubber. According to all applicable regulations. Harmful to aquatic life at high concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Take precautionary measures against electrostatic discharges. Ground the container while dispensing. Ground all equipment containing material. Use explosion proof equipment. Use non-sparking tools. Watch for accumulation in low confined areas. Empty containers may contain a hazardous residue. Do not use pressure to dispense. May develop pressure; vent periodically. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Product is highly hygroscopic.

Section IX. Protective Measures

Protective clothing	Splash goggles. Impervious viton or nitrile gloves, apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. Have available and use as appropriate: face shields, rubber suits, aprons, and boots. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.
Engineering controls	Use in a chemical fume hood to keep airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Vapors are heavier than air and may travel along the ground or pool in low areas. Because vapor is heavy, ventilation must be provided at floor level as well as at higher levels. Do not use in unventilated spaces.

Section X. Other Information

Special Precautions or comments

Flammable liquid! Corrosive! Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use in a chemical fume hood. Keep away from heat, sparks and flame. Take precautionary measures against static discharges. Use non-sparking tools. Bond and ground transfer containers and equipment to avoid static accumulation. May develop pressure; vent periodically. Handle and open container with care. Container should be opened only by a technically qualified person.
Synergistic materials: Increases the hepatotoxicity of carbon tetrachloride, chloroform, trichloroethylene and 1,1,2-trichloroethane.
RTECS NO: NT8050000 (IPA).
RTECS NO: TT2100000 (Potassium hydroxide).
NOTE TO PHYSICIAN: If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered. Metabolism of 2-propanol forms acetone, which may be detected in the urine and expired air. In contact to diabetic acidosis, acidosis will occur in the absence of hyperglycemia. Hemodialysis should be considered in severe acute intoxications.

NFPA

Prepared by MSDS Department/Département de F.S..

Validated 22-Jan-2014