CMC MATERIALS

SAFETY DATA SHEET

1. Identification

Product identifier **Potassium Hydroxide 10-50%**

Other means of identification

Synonyms Potassium Hydroxide 10-25% * Potassium Hydroxide 20% * Potassium Hydroxide 20-50% * Potassium Hydroxide 25-50% * Potassium Hydroxide 30% * Potassium Hydroxide 40% * Potassium Hydroxide 45% * Potassium Hydroxide 48% * Potassium Hydroxide 49%

Recommended use of the chemical and restrictions on use

Recommended use Industrial use.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier CMC Materials; 870 North Commons Drive; Aurora, IL 60504; United States

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E-mail steve.grundy@cmcmaterials.com

Manufacturer/Supplier CMC Materials; 300 Throckmorton, Suite 1900; Fort Worth, Texas 76102; United States

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Manufacturer/Supplier CMC Materials; Les Vieilles Hayes; 50620 Saint Fromond; France

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Emergency phone number

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Singapore +65 3158 6734

Asia-Pacific +1.760.476.3960

International +1.760.476.3962

Access code 333035

CHEMTREC For Dangerous Goods Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC 24/7 at:

Singapore 800.101.2201

International +1.703.741.5970

2. Hazards identification

GHS classification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	

GHS label elements, including precautionary statements

Pictograms

Signal word Danger

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

Precautionary statement

Prevention Keep only in original container. Do not breathe mist/vapours. Wear protective gloves/protective clothing/eye protection/face protection.

Response IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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 centre/doctor.

Storage Not assigned.

Disposal Not assigned.

Other hazards which do not result in classification None known.

Supplemental information None.

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical name	Common name and synonyms	CAS Number	Concentration (%)
Potassium hydroxide		1310-58-3	10 - 50

Composition comments All concentrations are in percent by weight unless otherwise indicated.
Components not listed are either non-hazardous or are below reportable limits.

4. First-aid measures

Inhalation In case of inhalation of mist/aerosol: Move person into fresh air and keep at rest. Get medical attention or advice.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician.

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 centre immediately.

Ingestion Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media Use extinguishing agent suitable for type of surrounding fire.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed. Thermal decomposition can lead to release of irritating gases and vapors.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk. Do not get water inside container. Do not scatter the material. Dike fire control water for later disposal.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards This product is an aqueous mixture which will not burn. Contact with metals may evolve flammable hydrogen gas.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

Methods and materials for containment and cleaning up
This product is miscible in water. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Retain and dispose of contaminated wash water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling
Do not breathe mist/vapours. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in tightly closed container. Keep only in the original container. Store away from incompatible materials (see section 10 of the SDS). May crystallize at temperatures < 5°C. For temperature recommendations, please refer to the product label.

8. Exposure controls/personal protection

Occupational exposure limits

Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order)

Components	Type	Value
Potassium hydroxide (CAS 1310-58-3)	STEL	2 mg/m3

Control parameters/Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Potassium hydroxide (CAS 1310-58-3)	Ceiling	2 mg/m3

Appropriate engineering control measures
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.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear approved chemical safety goggles. Wear face shield if there is risk of splashes.

Skin protection

Hand protection
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Glove material: Natural Rubber. Use gloves with breakthrough time of >= 420 minutes. Minimum glove thickness 0.5 mm. Glove material: Nitrile rubber. Use gloves with breakthrough time of >= 480 minutes. Minimum glove thickness 0.35 mm.

Other
Wear appropriate chemical resistant clothing. The following protective clothing is recommended: apron, boots, coveralls, protective sleeves.

Respiratory protection
Not required under normal conditions of handling. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Appropriate respirator selection should be made by a qualified professional. Use suitable respiratory protective device when aerosol or mist is formed. Selection and use of respiratory protective equipment should be in accordance with Singapore Standard SS 548:2009.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Colour	Colourless.
Odour	No odour.
Odour threshold	Not available.
pH	14
Melting point/freezing point	-7.78 °C (18 °F) (10% w/w) 4.44 °C (40 °F) (50% w/w)
Initial boiling point and boiling range	100.56 °C (213 °F) (10% w/w) 146.11 °C (295 °F) (50% w/w)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.09 (10% w/w) (15.56 °C (60 °F)) 1.516 (50% w/w) (15.56 °C (60 °F))
Solubility(ies)	
Solubility (water)	Completely soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other data	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	Reacts violently with strong acids. May be corrosive to metals.
Chemical stability	Absorbs carbon dioxide (CO_2) from air.
Possibility of hazardous reactions	Contact with metals may evolve flammable hydrogen gas. May react with trichloroethylene, producing spontaneously flammable dichloracetylene, carbon monoxide and toxic phosgene. If material comes into contact with acetaldehyde, acrolein, acrylonitrile, it may catalyze a highly exothermic polymerization reaction.
Conditions to avoid	Prolonged exposure to air. Contact with incompatible materials.
Incompatible materials	Acids. Metals.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mist: May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.

Acute toxicity Harmful if swallowed.

Components	Species	Test Results
Potassium hydroxide (CAS 1310-58-3)		
Acute		
Oral		
LD50	Rat	365 mg/kg

Symptoms Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Skin corrosion/irritation Causes severe skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitiser.

Skin sensitisation This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects None known.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Potassium hydroxide (CAS 1310-58-3)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	80 mg/l, 96 Hours

Persistence and degradability The product solely consists of inorganic compounds which are not biodegradable.

Bioaccumulative potential The product is not expected to bioaccumulate.

Mobility in soil The product is soluble in water. Expected to be mobile in soil.

Other adverse effects The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

14. Transport information

ADR

UN number UN1814
UN proper shipping name POTASSIUM HYDROXIDE SOLUTION
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Hazard No. (ADR) 80
Tunnel restriction code E
Packing group II
Environmental hazards No
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

UN number UN1814
UN proper shipping name POTASSIUM HYDROXIDE SOLUTION
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group II
Environmental hazards No
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

UN number UN1814

UN proper shipping name POTASSIUM HYDROXIDE SOLUTION

Transport hazard class(es)

Class 8

Subsidiary risk -

Label(s) 8

Packing group II

Environmental hazards No

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number UN1814

UN proper shipping name Potassium hydroxide solution

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Environmental hazards No

ERG Code 8L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1814

UN proper shipping name POTASSIUM HYDROXIDE SOLUTION

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Environmental hazards

Marine pollutant No

EmS F-A, S-B

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question This safety data sheet was prepared in accordance with Singapore Standard Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods Part 3: Preparation of Safety Data Sheets (SDS) (SS 586: Part 3: 2014) as amended.

Prior Informed Consent (PIC) Substances (Environment Protection and Management Act, 2nd Schedule, Part 1, Jul. 1, 2013)

Not regulated.

Chemical Weapons Prohibition (Act)

Not applicable.

Environmental Protection and Management (Hazardous Substances) Regulations

Potassium hydroxide (CAS 1310-58-3) 1000 kg

Environmental Public Health Act

Not applicable.

Misuse of Drugs Act

Controlled Narcotic Drugs (Misuse of Drugs Act, First Schedule, Part I, II & III, as amended)

Not regulated.

Drug Precursors (Misuse of Drugs Act, Third Schedule, Parts I & II, as amended)

Not regulated.

Controlled Specified Drugs (Misuse of Drugs Act, Fourth Schedule, as amended)

Not regulated.

Temporarily Listed Drugs (Misuse of Drugs Act, Fifth Schedule, as amended)

Not regulated.

International regulations

Montreal Protocol

Not applicable.

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

References ECHA registered substances database

HSDB® - Hazardous Substances Data Bank

Issued by Not available.

Prepared by

Title Sharlene Parry, Product Stewardship Manager

Disclaimer CMC Materials cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

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Key/legend ACGIH: American Conference of Governmental Industrial Hygienists.
ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS: Chemical Abstract Service.
IATA: International Air Transport Association.
IBC: Intermediate Bulk Container.
IMDG: International Maritime Dangerous Goods.
MARPOL: International Convention for the Prevention of Pollution From Ships.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short-Term Exposure Limit.