Elite Advanced Materials Sdn Bhd

SAFETY DATA SHEET

According to Regulation (EC) No453/2010

SDS –EKOH(0.1)-0001
Version 1.3
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www.eamaterials.com

Section 1: IDENTIFICATION OF SUBSTANCE/ MIXTURE AND OF THE COMPANY

1.1 Product identifier

Product name	:	**Potassium hydroxide solution in Ethanol, 0.1 N**
Including product code	:	EKOH(0.1)111-1.0.

1.2 Relevant identified uses of the substance or mixture

Identified uses	:	Laboratory chemicals, Manufacture of substances
Uses advised against	:	Not applicable

1.3 Details of the supplier of the safety datasheet

Company	:	Elite Advanced Materials Sdn Bhd No 1, Jalan KPK1/2, Kawasan Perindustrian Kundang, 48020 Rawang, Selangor, Malaysia
E-mail address	:	enquiry@eamaterials.com

1.4 Emergency telephone number

Emergency	:	+60 3-60343766 (Local business hours only)

Section 2: HAZARDS INDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flammable Liquids	Category 2
Skin corrosion	Category 1B
Corrosive to Metals	Category 1

2.2 Label elements

Labeling in compliance to Regulation (EC) No. 1272/2008 [CLP/GHS]

Hazard pictograms

GHS02

GHS05

Signal word

Danger

Hazard statement

H225	Highly flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P210	Keep away from heat, hot surfaces, open flames, sparks. No smoking.
P240	Ground/bond container and receiving equipment.
P280	Wear protective gloves/protective clothing/eye protection/ face Protection.

Response

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 If exposed or concerned: Immediately call a POISON CENTER or doctor/physician.

2.3 Other hazards

No data available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Synonyms : Ethanolic KOH

Formula : $C_2H_7KO_2$

Molecular Weight : 102.174 g/mol

Hazardous components according to Regulation (EC) No 1272/2008

Component	Identity	Classification Code	H-Code	Concentration
Ethanol	CAS-No.: 64-17-5	Flam. Liq. 2 Eye Irritat. 2	H226 H319	<=100 %
Potassium hydroxide	CAS-No.: 1310-58-3	Met. Corr. 1 Acute Tox. 4 Skin corr. 1A	H290 H302 H314	>= 0.1 - <= 1 %

Section 4: FIRST AID MEASURES

4.1 Description of First Aid measures

General information

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off immediately all contaminated clothing. Wash off with soap and plenty of water for at least 15 minutes. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and delayed symptoms and effects

Irritant effects, respiratory paralysis, dizziness, narcosis, inebriation, euphoria, nausea, vomiting, cough, shortness of breath, risk of blindness.

4.3 Indication of any immediate medical attention and special treatment

No data available.

Section 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use alcohol-resistant foam, dry powder or carbon dioxide (CO2) to extinguish flames.

Unsuitable extinguishing media

None.

5.2 Special hazards arising from the substance or mixture

Combustible.
Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air at ambient temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for fire-fighters

Wear full protective clothing and self-contained breathing apparatus if necessary. Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone. Use water spray to cool unopened containers. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal protective equipment is required during handling. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Do not discharge into drains or water ways. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see Section 13.

Section 7: HANDLING AND STORAGE

7.1 Precaution for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	ACGIH TLV (8 hr)	CAL/OSHA PEL (8 hr)	NIOSH REL (Up to 10 hr)
Ethanol	No data available	TWA: 1000 ppm	No data available
Potassium hydroxide	No data available	Ceiling: 2 mg/m^3	No data available

(Merck, 2018; Ver 1.4)

8.2 Exposure control

Personal protection measures, such as personal protective equipment

Never eat, drink or smoke during handling the chemical. Ensure that there is adequate ventilation, especially in confined areas.

Eye/ face protection

Face shield and safety glasses is required during handling. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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. Discard of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact*

Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: >480 min

Splash contact*

Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: >120 min

(Merck, 2018; Ver 1.4)

Body protection

Impervious clothing, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colourless to Light yellow
Odor	:	Ethanol
Ordor threshold	:	No data available
pH - value	:	ca. 14 at 20 °C
Melting point / Range	:	-114.5 °C [ethanol]
Boiling point / Range	:	78.3 °C at 1,013 hPa [ethanol]
Flash point	:	12 °C [ethanol, closed cup]
Evaporation rate	:	No data available

Lower explosion limit – LEL	:	3.5 %(V) [ethanol]
Upper explosion limit - UEL	:	15.0 %(V) [ethanol]
Vapour pressure	:	59 hPa at 20°C [ethanol]
Vapor density (air = 1)	:	1.6 [ethanol]
Density	:	0.85 g/cm3 at 20 °C
Bulk density	:	No data available
Solubility(ies)	:	No data available
Water solubility	:	Soluble at 20°C
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	1.2 mPa.s at 20°C
Explosive properties	:	Not classified as explosive
Oxidising properties	:	None

(Merck, 2018; Ver 1.4)

9.2 Other information

Ignition temperature	:	425 °C [ethanol]
Corrosion	:	May be corrosive to metals

Section 10 : STABILITY AND REACTIVITY

10.1 Reactivity

Vapours may form explosive mixture with air

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Risk of explosion/exothermic reaction with:
Hydrogen peroxide, perchlorates, perchloric acid, nitric acid, mercury (II) nitrate, permanganic acid, nitriles, peroxi compounds, strong oxidising agents, nitrosyl compounds, peroxides, sodium, sodium azide, potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, chlorine, alkali metals, alkaline earth metals,

alkali oxides, ethylene oxide, silver, silver compounds, ammonia, potassium permanganate, conc. sulfuric acid, benzoyl chloride, calcium, in powder form, carbides, organic nitro compounds, phosphorus, nonmetallic oxides, chlorine dioxide, fluorine, magnesium, nitroso compound, nitrogen trichloride, tetrahydrofuran

Risk of ignition or formation of inflammable gases or vapours with:
Halogen-halogen compounds, chromium (VI) oxide, chromyl chloride, fluorine, hydrides, oxides of phosphorus, platinum, aluminium, ammonium salts, germanium, anhydrides, azides, lead, copper, copper alloys, tin, zinc

Exothermic reaction with:
Acetonitrile, acrolein, aldehydes, alcohols, acetic acid, halogenated hydrocarbon, halogen-halogen compounds, peroxides, hydrogen sulphide, hydrogen peroxide, vinyl acetate, reducing agents, acids, acid chlorides, acid anhydrides, peroxi compounds, methanol, chloroform.

10.4 Conditions to avoid

Incompatible materials, ignition sources, excess heat, oxidizers.

10.5 Incompatible materials

Animal/vegetable tissues, glass, various plastics, metals and alloys.

10.6 Hazardous decomposition products

In the event of fire: See section 5.

Section 11 : TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ethanol

LD50 Oral	- 10,470 mg/kg	(Rat)
LC50 Inhalation	- 124.7 mg/l/4h	(Rat)

Potassium hydroxide

LD50 Oral	- 333 mg/kg	(Rat)

(Merck, 2018; Ver 1.4)

Skin corrosion/irritation

Ethanol

Skin - Rabbit
Result: Not irritation
OECD Test Guideline 404

Potassium hydroxide

Skin - Rabbit
Result: Causes burn
OECD Test Guideline 404

(Merck, 2018; Ver 1.4)

Serious eye damage/eye irritation

Ethanol

Eyes - Rabbit
Remarks : Causes eye irritation
OECD Test Guideline 405

Potassium hydroxide

Skin - Rabbit
Result: Causes serious eye damage
OECD Test Guideline 405

(Merck, 2018; Ver 2.4)

Respiratory or skin sensitization

Ethanol
Local lymph node assay (LLNA) Mouse
Result: Negative
OECD Test Guideline 429

Potassium hydroxide
Guinea pig
Result: Negative

(Merck, 2018; Ver 2.4)

Germ cell mutagenicity

Ethanol
Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Mouse lymphoma test
Result: negative
OECD Test Guideline 476

Potassium Hydroxide
Genotoxicity in vitro
Ames test
Escherichia coli/Salmonella typhimurium
Result: negative

(Merck, 2018; Ver 2.4)

Carcinogenicity

No data available

Reproductive toxicity

Ethanol
Oral – Mouse
Method: OECD Test Guideline 416

(Merck, 2018; Ver 2.4)

Specific target organ toxicity – single exposure

No data available

Specific target organ toxicity – repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Systemic effects:
After absorption of large quantities:
Dizziness, inebriation, euphoria, narcosis, respiratory paralysis, Risk of corneal clouding.
Other dangerous properties cannot be excluded.
Handle in accordance with good industrial hygiene and safety practice.

(Merck, 2018; Ver 2.4)

Section 12 : ECOLOGY INFORMATION

12.1 Ecotoxicity

Ethanol

Toxicity to fish	Flow-through test EC50 – Pimephales promelas (feathed minnow) – 15300 mg/l – 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia crustaceans (Water flea) – 9268-14221 mg/l – 48 h
Toxicity to algae	IC5- Scenedesmus quadricauda (Green algae) – 5000 mg/l – 7 d
Toxicity to bacteria	EC5 - Pseudomonas putida – 6500 mg/l – 16 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity	Semi-static test NOEC – Daphnia magna (Water flea) – 9.6 mg/l – 9 d

(Merck, 2018; Ver 2.4)

Potassium hydroxide

Toxicity to fish	Flow-through test EC50 – Pimephales promelas (feathed minnow) – 15300 mg/l – 96 h

(Merck, 2018; Ver 2.4)

12.2 Persistence and degradability

Ethanol

Biodegradability	94 % - OECD Test Guideline 301E – Readily biodegradable
Biochemical Oxygen Demand (BOD)	930-1670 mg/g – 5 d
Theoretical Oxygen Demand (ThOD)	2100 mg/g
Ration COD/ThBOD	90%

Potassium hydroxide

Biodegradability	The methods for determining the biological degradability are not applicable to inorganic substances

(Merck, 2018; Ver 2.4)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Other adverse effects

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

Section 13 : DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

Product

Waste material must be disposed according to national and local regulations. Keep the chemicals in its specific waste container according to the waste classification.

According to Quality Environment Regulation (Scheduled Waste) 2005, waste need to be sent to designated premise for recycle, treatment or disposal. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

Section 14 : TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 2924	IMDG: 2924	IATA-DGR: 2924

14.2 UN proper shipping name

ADR/RID:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONT. ETHANOL, POTASSIUM HYDROXIDE)
IMDG:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONT. ETHANOL, POTASSIUM HYDROXIDE)
IATA-DGR:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONT. ETHANOL, POTASSIUM HYDROXIDE)

14.3 Transport hazard class(es)

ADR/RID: 3 (8)	IMDG: 3 (8)	IATA-DGR: 3 (8)

14.4 Packaging group

ADR/RID: II	IMDG: I	IATA-DGR: II

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA-DGR: no

14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

14.7 Special precautions for user

No data available

Section 15 : REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

All national and local regulations, including Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013, if applicable to the use, should be observed.

National legislation
Storage class: 3

Section 16 : OTHER INFORMATION

This information is based on present level of our knowledge; however, this shall not constitute a guarantee product features and shall not establish a legally valid contractual relationship.

Abbreviations:

ADR : European agreement concerning the international carriage of dangerous goods by road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association

ICAO : International Civil Aviation Organization

RID : Regulations concerning the International Carriage of Dangerous goods by rail.

Notice to reader

The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the products and should not be construed as any guarantee of technical performance or suitability for particular application.

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