

# SAFETY DATA SHEET

According to Regulation (EC) No 453/2010

SDS-EKOH(0.5)-0001

Version 1.2

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[www.eamaterials.com](http://www.eamaterials.com)

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product identifier

Product name : Potassium hydroxide solution in Ethanol, 0.5 N

Included product code : EKOH(0.5)111-1.0, EKOH(0.5)111-2.5

### 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 data sheet

Company : Elite Advanced Materials Sdn Bhd  
No 1, Jalan KPK 1/2, Kawasan Perindustrian  
Kundang, 48020 Rawang, Selangor, Malaysia

E-mail address : enquiry@eamaterials.com

### 1.4 Emergency telephone number

Emergency phone : +60 3-6034 3766 (Local business hours only)

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

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

Flammable liquids	Category 2
Skin corrosion/ Irritation	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 statements

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

Precautionary statements

P210 Keep away from heat, hot surfaces, open flames, sparks.  
 No smoking  
 P233 Keep container tightly closed  
 P240 Ground/bond container and receiving equipment  
 P280 Wear eye protection, face protection, protective clothing,  
 protective gloves

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  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

**2.3 Other hazards**

Not available

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substance**

Synonyms: Ethanolic KOH  
 Formula:  $C_2H_7KO_2$   
 Molecular Weight: 102.174 g/mol

Component	Identity	Classification Code	H-Code	Concentration (by wt)
Ethanol	CAS-No. : 64-17-5 EC No. : 200-578-6 Index No. : 603-002-00-5	Flam. Liq. 2 Eye Irrit. 2A	H225 H319	>= 60 - <=100 %
Potassium hydroxide	CAS-No. : 1310-58-3 EC No. : 215-181-3 Index No. : 019-002-00-8	Met. Corr. 1 Acute Tox. 4 Skin corr. 1A	H290 H302 H314	>= 1 - <=3 %

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of First Aid measures

#### General information

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move the person into fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give artificial respiration. Immediate medical attention is required.

#### In case of skin contact

Take off immediately all contaminated clothing. Wash off with soap and plenty of water for at least 15 minutes. Take victim to a doctor if irritation persists.

#### In case of eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

#### If swallowed

Do NOT induce vomiting. Give nothing to drink. 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

Central nervous system depression, narcosis, heart damage, irritation and corrosion, cough, shortness of breath, inebriation, euphoria, dizziness, respiratory paralysis, risk of corneal clouding, 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 chemical, dry sand or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

#### Unsuitable extinguishing media

DO NOT use water jet.

### 5.2 Special hazards arising from the substance or mixture

Combustibles. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air at ambient temperatures. Pay attention to flashback. Development of

hazardous combustion gases or vapours possible in the event of fire.

### **5.3 Advice for fire-fighters**

Full protective clothing and self-contained breathing apparatus are required during handling.

### **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 vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### **6.2 Environmental precautions**

Do not discharge into drains or waterways. Prevent further leakage or spillage if safe to do so. Risk of explosion.

### **6.3 Methods and material for containment and cleaning up**

Cover drain. Contain spillage, and then collect with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite). Observe possible material restrictions (see sections 7 and 10). Place it in a container for disposal according to local/ national regulations (see section 13). Clean up affected area.

### **6.4 Reference to other sections**

Information on waste treatment, 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 precautionary measures against static discharges. Observe label precautions.

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a cool dry, well-ventilated place. Keep away from all sources of ignition, heat and direct sunlight. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Recommended storage temperature 2 – 8 °C.

### **7.3 Specific end use**

No further relevant information available.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Component	OSHA PEL
Ethanol	TWA: 1,000 ppm TWA: 1,880 mg/m <sup>3</sup>
Potassium hydroxide	CEIL: 2 mg/m <sup>3</sup>

### 8.2 Exposure control

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protection equipment

Do not eat, drink or smoke during chemical handling. Remove and wash contaminated clothing before re-using. Ventilation must working properly, especially in confined areas. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled.

#### **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**

Wear appropriate protective gloves and clothing to prevent skin exposure. 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. Dispose 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

\*Source – Merck, 2017

## Body protection

Complete suit protecting against chemicals. Impervious and 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). Recommended filter type: A-(P2). The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Light yellow
Ordor	:	Ethanol
Ordor threshold	:	No data available
pH - value	:	14 at 20 °C
Melting point / Range	:	-114.5 °C
Boiling point / Range	:	79 °C @ 760 mmHg
Flash point	:	13 °C [closed cup]
Evaporation rate	:	No data available
Flammability limit - LEL	:	3.5 %(V)
Flammability limit - UEL	:	15.0 %(V)
Vapour pressure	:	44.25 mm Hg at 20.0 °C
Vapor density (air = 1)	:	1.6
Density	:	0.85 at 20 °C
Bulk density	:	No data available
Solubility(ies)	:	No data available
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water:	:	No data available
Auto-ignition temperature	:	425 °
Decomposition temperature	:	No data available
Viscosity	:	1.2 cP at 20 °C
Explosive properties	:	Not classified as explosive
Oxidising properties	:	None
Surface Tension	:	No data available

### 9.2 Other information

Not applicable

## 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, peroxy compounds, strong oxidising agents, nitrosyl compounds, peroxides, sodium, potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, chlorine, alkali metals, alkaline earth metals, alkali oxides, ethylene oxide, silver with nitric acid, silver compounds with ammonia, potassium permanganate with conc. Sulfuric acid

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

Nitric acid with potassium permanganate

### 10.4 Conditions to avoid

Incompatible materials, ignition sources, excess heat, oxidizers

### 10.5 Incompatible materials

Alkali metals, oxidizing agents, peroxides, animal/vegetable tissues, glass, various plastics, metals and alloys

### 10.6 Hazardous decomposition products

No data available

## SECTION 11: TOXICOLOGY INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute toxicity estimate: >2,000 mg/kg (Calculation method)

#### Skin corrosion/irritation

Mixture causes burns.

#### Serious eye damage/eye irritation

Mixture causes serious eye damage. Risk of blindness!

#### Respiratory or skin sensitisation

No data available

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

No data available

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

#### **Signs and Symptoms of Exposure**

Central nervous system depression, narcosis, damage to heart. To the best of our knowledge, the chemical, physical, and toxicological have not been thoroughly investigated.

#### **Additional Information**

RTECS: Not available

## **SECTION 12: ECOLOGY INFORMATION**

### **12.1 Ecotoxicity**

No data available

### **12.2 Persistence dan degradability**

No data available

### **12.3 Bioaccumulative potential**

No data available

### **12.4 Mobility in soil**

No data available

### **12.5 Results of PBT and vPvB assessment**

The substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **12.6 Other adverse effects**



Discharge into the environment must be avoided.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment method

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: TRANSPORT INFORMATION

### 14.1 UN number

ADR/RID: 2294

IMDG: 2294

IATA-DGR: 2294

### 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: II

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

Storage class 3

## 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

### 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.

Relevant phrases:

H225 Highly flammable liquid and vapor

H290 May be corrosive to metals

H314 Causes serious skin burns and eye damage

#### 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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