

SAFETY DATA SHEET

AL ETCHANT

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- 1.1 **PRODUCT NAME:** Aluminium (Al) Etchant
- 1.2 **OTHER/GENERIC NAMES:** -
- 1.3 **RECOMMENDED USE AND RESTRICTIONS ON USE:** For metal etching.
- 1.4 **SUPPLIER DETAIL:** *EMK Technologies Pte Ltd*
21 Bukit Batok Crescent, Wcega Tower #14-76, Singapore 658065
- 1.5 **EMERGENCY CALL:** **+65.9722 1005 / Fax: +65.6684 7838**

2. HAZARDS IDENTIFICATION

- 2.1 **Hazard classification :**
- Oxidizing liquid (Category 3)
 - Corrosive to metal (Category 1)
 - Acute Toxicity: oral/dermal (Category 2)
 - Acute Toxicity: Skin (Category 3)
 - Acute Toxicity: Inhalation (Category 3)
 - Skin Corrosion/Sensitization (Category 1)
 - Eye Corrosion/Irritation (Category 1)
 - Respiratory irritation (Category 1)



- 2.2 **GHS label:**
- 2.3 **Warning information:** Danger
- 2.4 **Hazard statement:**
- May intensify combustion; oxidizer
 - May be corrosive to metals
 - May be fatal if swallowed
 - Toxic in contact with skin and if enters airways
 - Causes severe skin burns and eye damage
 - Cause long-term adverse effects if long term/repetitive exposure
- 2.5 **Precautionary statement:** Get away from heat
- Prevent from mixing with flammable mixtures
 - Cannot transfer to other container
 - No food/smoking while handling chemicals
 - Wear personal protective equipment as required
 - Clean hands thoroughly after handling chemicals

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	Concentration (weight %)
Phosphoric Acid	7664-38-2	65-75%
Nitric Acid	7697-37-2	1-5%
Acetic Acid	64-19-7	5-10%

4. FIRST AID MEASURES

4.1 Inhalation :

If you experience nauseated, headaches, or dizzy, leave area of exposure to breath fresh air immediately. Give oxygen; keep warm; and artificial respiration if necessary. Get medical attention.

4.2 Skin Contact :

Remove contaminated clothing as needed. Wash affected skin thoroughly with soap and water. Flush with water for at least 15 minutes. Seek urgent medical attention.

4.3 Eye Contact :

Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention. Remove contact lenses, if worn. DO NOT use counteractive to flush eyes.

4.4 Ingestion :

Induce vomiting. Give 2 tablespoons baking soda in water. Get medical assistance.

4.5 Protection for first-aid personnel:

Ensure self-protection!

4.6 Instructions for doctor:

Instruct the way of infection.

5. FIRE FIGHTING MEASURES

5.1 **Suitable fire-extinguishing media:** CO₂, dry chemical powder, foam and sand.

5.2 **Special risks:** Development of hazardous combustion gases or vapors possible in the event of fire. The following may develop in event of fire: acetic oxides, nitrogen oxides, phosphorus oxides.

5.3 **Process of extinguishing:** Non-combustible Cool container with spray water from a save distance. Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or groundwater.

5.4 **Other information:** Don't stay in dangerous zone without suitable chemical protection clothing and self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- 6.1 **Person-related precautionary measures:** Avoid substance contact. Limit person to enter without having self-protection. Do not inhale vapors/aerosols. Provide local exhaust ventilation.
- 6.2 **Environmental-protection measures:** Do not allow entering sewerage system.
- 6.3 **Procedures for cleaning/absorption:** Shut off all sources of ignition. No flares, smoking, or flames in area. Absorb the chemical with inert material, then place in a chemical waste containers by using non-sparking tools. Flush residual spill area with water.
- 6.4 **Additional notes:** Render harmless; Treat with a mixture of lime in sodium carbonate solution or by throwing on lime or lime sand.

7. ACCIDENTAL RELEASE MEASURES

- 7.1 **Handling:** Work under hood. Do not inhale substance; Avoid generation of vapors/aerosols: Observe the expiry date on then! Once the expiry date has elapsed immediately neutralize the contents and forwards for disposal, No re-transport possible!
- 7.2 **Storage:** Tightly closed. In a well-ventilated place. Protected from light. Below +25°C; In containers. Accessible only for authorized persons. The storage temperature stated does not apply to packing material made of polythylene. The stored place should be fireproof and corrosive-resistant. Please observe the note on the label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 **Engineering control:** Provide local exhaust ventilation in packing area. Fill the bottle product in the cabinet and cabinet should be corrosive-resistant
- 8.2 **Specific control parameter:**
- 8.3 **Time-weighted average permissible exposure limit:** N/A
- 8.4 **Short-term permissible exposure limit:** N/A
- 8.5 **Ceiling value permissible exposure limit:** N/A
- 8.6 **Biological indices:** N/A
- 8.7 **Personal protective equipment:** required
- 8.8 **Respiratory protection:** required when vapors/aerosols are generated.
- 8.9 **Hand protection:** required
- 8.10 **Eye protection:** required
- 8.11 **Skin and body protection:** Acid-resistant.
- 8.12 **Hygiene measures:** Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance. Under no circumstances eat or drink at workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless liquid. Pungent smell.
Physical state (at STP)	Liquid
Boiling point	Not Applicable
Melting point	Not Applicable
Specific gravity	1.5-1.8
Water solubility	Soluble (20°C)
pH	< 2
Vapor pressure	Not Established
Evaporation rate	Not Established
% Volatiles by volume	Not Applicable

10. STABILITY AND REACTIVITY

- 10.1 **Stability:** stable
- 10.2 **Hazardous reaction in exceptional condition:** N/A
- 10.3 **Conditions to be avoided:** N/A
- 10.4 **Substances to be avoided:** Strong alkalis, sulfide, phosphide, alkali metals, alkaline earth metals, metals;
- 10.5 **Formation of:** hydrogen, toxic vapors.
- 10.6 **Further information:** Unsuitable working materials: metals, quartzes/silicate ceramics. If packaging material made of polyethylene is used, observe special storage temperature and expiry dates.

11. TOXICOLOGICAL INFORMATION

- 11.1 **LD50:** N/A
- 11.2 **LC50:** N/A
- 11.3 **Acute toxicity:** N/A
- 11.4 **Chronic toxicity:** Checks into the substance have so far not disclosed any investigations concerning possible teratogenic effects. No appreciable contribution to the cancer risk in humans is to be expected where the limit value for occupational safety is observed.

12. ECOLOGICAL INFORMATION

- 12.1 **Ecotoxic effects:** N/A
- 12.2 **Biological effects:** Harmful effect due to pH shift. Caustic event in diluted form. Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil or water. Do not allow entering waters, wastewater or soil.

13. ECOLOGICAL INFORMATION

Waste disposal measures:

Treat with a mixture of lime in sodium carbonate solution or by throwing on lime or lime sand.
The management of derivative should be obeyed the relative regulation of R.O.C.

Waste disposal measures should be obeyed by all the environmental regulation of R.O.C.

According to suggestion of chemical supplier or TEAP (Transportation Emergency Assistance Plan)

14. TRANSPORT INFORMATION

14.1 **UN number:** 1760

14.2 **UN classification number:** Corrosive liquid

14.3 **Transport hazard class:** 8

14.4 **Packing group:** III

14.5 **Marine pollution:** No

14.6 **Specific precautionary transport measures and conditions:**

- Protect against physical damage, handle with care to prevent leakage of chemicals.
- Avoid exposure to sunlight to prevent discoloration.

15. REGULATORY INFORMATION

Applicable Regulations :

- Regulations for Labor Safety and Health Installations
- Regulations for Chemical Hazard Communication
- Road Traffic Safety Regulations
- Industrial Waste Storage and Disposal Regulations
- Facility Standards

16. OTHER INFORMATION

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Date of issuance: 14 August 2015

Literature references: GHS SDS Revision 1.5 dated 13/3/2014

(http://ghs.cla.gov.tw/tw/Mark_SDS_List.asp?PageMode=GHS_SDS)

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