



Safety Data Sheet

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Section 1 - Product and Company Identification

Product name : Aluminium Etchant
Other names : --
Product use : etching aluminum metallizations on silicon devices and in integrated circuit applications.
Supplier's name : San Fu Chemical Co., Ltd., Shan Hua Plant
Supplier's address : 1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.
Supplier's phone : 886-6-6231821 Emergency phone : 886-6-6231821
FAX. : 886-6-6231822

Section 2 - Hazards Identification

Classification :
1. Acute Toxicity Category 4 (Oral)
2. Corrosive to Metals Category 1
3. Skin Corrosion/Irritation Category 1
4. Serious Eye Damage/Eye Irritation Category 1
The Most Important Hazards and effect
Label element :
■ Hazard symbol : Corrosion · Exclamation
■ Signal word : Danger
Hazard statement :
1. Harmful if swallowed
2. May corrode metals
3. Cause serious skin burns and eye damage
4. Cause serious eye damage
Precautionary statement :
1. If contact with eyes, flush water and get medical attention immediately.
2. Wear proper protective gears.
3. If case of accident or if you feel unwell, seek medical advice immediately.
Others Hazard : --

Section 3 - Composition/Information On Ingredients

Mixture :

Component or impurities contributing to the hazard	Concentration or concentration range (%)	CAS No.
Acetic Acid	5~15%	64-19-7
Nitric Acid	1~10%	7697-37-2
Phosphoric Acid	50~75%	7664-38-2
Water	Balance to 100%	N/A



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Section 4 - First Aid Measures

<p>The First-aid Information :</p> <ul style="list-style-type: none">■ Inhalation :<ol style="list-style-type: none">1. Remove casualty from expose ensuring one's own safety whilst doing so.2. If unconscious and breathing is OK, place in the recovery position.3. If conscious, ensure the casualty sits or lies down.4. If breathing becomes bubbly, have the casualty sit and provide oxygen if available.5. Transfer to hospital ASAP.■ Skin Contact :<ol style="list-style-type: none">1. Wear protective impervious gloves to avoid contacting with this substance.2. Flush the affected skin for at least 20 minutes.3. Remove all contaminated clothes, shoes, and leather products.4. Get medical attention immediately.5. Clean thoroughly the contaminated clothing before reuse or discard.■ Eye Contact :<ol style="list-style-type: none">1. Immediately flush eyes with water for at least 20 minutes. Forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues.2. Avoid contaminated unaffected area.3. Get medical attention immediately.■ Ingestion :<ol style="list-style-type: none">1. Never give anything by mouth to an unconscious or convulsive person.2. If swallowed, don't induce vomiting.3. If the patient is conscious, rinse mouth thoroughly and drink about 240~300 ml water.4. Do not induce vomiting.5. Get medical attention immediately.
<p>The Most Important Symptoms and Hazardous Effects : blind</p>
<p>Protection of First-aiders :</p> <ol style="list-style-type: none">1. Avoid providing aid to give mouth-to-mouth resuscitation.2. Wear adequate personal protective equipment, such as Class C Chemical protective clothing.
<p>Notes to a Physician : --</p>

Section 5 - Fire Fighting Measures

<p>Extinguishing Media :</p> <ol style="list-style-type: none">1. This substance is not inflammable. Use powder, foam, CO₂, or water spray to extinguish the fire.2. Suitable extinguishing media for surround fire should be used.
<p>Specific Hazards when Fire-fight : --</p>
<p>Specific Fire-fighting Procedure :</p> <ol style="list-style-type: none">1. If safe to do so, move undamaged containers to safe zone.2. If not, use water spray to cool containers and surrounding.
<p>Specific Protection of Firefighters :</p> <ol style="list-style-type: none">1. Wear self-contained breathing apparatus.2. Wear protective clothing to prevent contact with skin and eyes.



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Section 6 - Accidental Release Measures

Personal Precautions : <ol style="list-style-type: none"> 1. Any source of fire is strictly prohibited. 2. Wear protective gears to prevent contact with skin and eyes or inhale the vapor.
Environmental Precautions : <ol style="list-style-type: none"> 1. Keep well-ventilation before cleaning up the indoor. 2. Prevent entry into sewers or rivers.
Methods for Cleaning up : <ol style="list-style-type: none"> 1. Approach fire from upwind. Stay away from the toxic vapor or decomposition. 2. Clean-up should be dealt with only by qualified personnel. 3. Absorb into dry earth or sand. 4. Transfer to a closable, labeled salvage container for disposal by an appropriate method. 5. Keep unnecessary people away, isolate hazard area and deny entry.

Section 7 - Handling and Storage

Handling : <ol style="list-style-type: none"> 1. Avoid direct contact with the substance. 2. Ensure there is sufficient ventilation of the area. 3. Do not handle in a confined space. 4. Ensure all employees receive appropriate training of handling the hazardous materials. 5. Keep away from heat or any source of ignition. 6. Careful handling without speak or spill. 7. Avoid the formation or spread of mists in the air. 8. Do not inhale vapor or mist. 9. Tightly close the contain if not use. 10. Keep away from any incompatibles, such as high-temperature materials, source of fire, and strong base. 11. Prohibit smoking and eating in work and storage area. 12. Wear proper breathing apparatus/protective gloves/face protection. 13. Avoid contact with contaminated equipment. 14. Wash face and hands thoroughly after handing. 15. An eyewash and/or emergency shower should be available in work area.
Storage : <ol style="list-style-type: none"> 1. Store in cool, well ventilated area. 2. Keep container tightly close. 3. Avoid sunshine. 4. Lock the storage area.

Section 8 - Exposure Controls & Personal Protection

Engineering measures : Use adequate general and local exhaust ventilation. Emergency shower and/or eyewash should be considered.			
Control parameters			
TWA	STEL	Ceiling	Biological standards
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Personal protective equipment :

- Respiratory Protection : Gas mask
- Hand Protection : Neoprene Rubber Glove
- Eye Protection : Safety goggles or protective mask
- Skin and Body Protection : Protective clothing, helmet, rubber boots

Hygiene measures :

1. Keep a fire extinguisher and cleaning equipment nearby.
2. Immediately change contaminated clothing after work. Appropriate warning before cleaning.
3. Wash hands thoroughly after handling.
4. Smoking, eating, and drinking are prohibited in the work area.
5. Maintain cleanness in the work area.

Section 9 - Physical & Chemical Properties

Appearance : Liquid	Odor : Pungent
Color : Transparent	Melting Point: --
pH value : < 1	Boiling point/boiling range : --
Flammability: --	Flash point : --
Decomposition temp : --	Test method : --
Auto ignition temp : --	Explosion properties : --
Vapor pressure : --	Vapor density : --
Density : 1.54	Solubility : miscible in water
log Kow : --	Evaporation Rate : --

Section 10 - Stability & Reactivity Data

Stability : Stable under normal condition
Possible hazardous reactions under specific conditions : --
Conditions to avoid : --
Materials to avoid : Strong oxidizing agents. Strong acid.
Hazardous decomposition products : CO, CO ₂

Section 11 - Toxicological Information

Route of exposure : inhalation, skin, ingestion, eye
Symptoms : irritation, burning sensation, stomachache, difficulty in breathing, nausea, vomiting, abdominal pain, dermatitis
Immediate Toxicity : <ol style="list-style-type: none">1. Skin : Blistering may occur. Progressive ulceration will occur if treatment is not immediate.2. Inhalation : There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.



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| <p>3. Eye : Corrosive burns may appear around the lips. There may be bleeding from the mouth or nose.</p> <p>4. Ingestion : Corrosive burns may appear around the lips and throat. It may cause stomachache, difficulty in breathing, nausea, vomiting, abdominal pain, spasm, or even collapse and death.</p> <ul style="list-style-type: none">● LD₅₀: 3310 mg/kg (Oral, Rat, Acetic Acid)
1530 mg/kg (Oral, Rat, Phosphoric Acid)● LC₅₀: 5620 ppm/h (Inhalation, Mouse, Acetic Acid)
> 850 mg/m³/1h (Inhalation, Rat, Phosphoric Acid) |
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Specific effects : It may cause stomachache, difficulty in breathing, nausea, vomiting, abdominal pain, spasm, or even collapse and death.
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Section 12 - Ecological Information

Ecotoxicology : <ul style="list-style-type: none">■ LC₅₀(fish) : --■ EC₅₀(Aquatic Invertebrates) : --■ Bioconcentration factor (BCF) : --
Persistence and degradability : <ul style="list-style-type: none">■ Half-Life (Air) : --■ Half-Life (Water surface) : --■ Half-Life (Groundwater) : --■ Half-Life (Soil) : --
Bioaccumulative potential : no bioaccumulation potential.
Mobility in soil : readily absorbed into soil.
Other adverse effects : Biodegradable, negligible eco-toxicity

Section 13 - Disposal Considerations

Methods of disposal : Arrange for collection by specialized disposal company.

Section 14 - SDS Transport Information

UN classification number : 1760
Proper D.O.T Shipping Name :
Hazard Class : 8
Packing Group : II
Marine pollution : n/a
Specific precautionary transport measures and conditions : --

Section 15 - Regulatory Information

Regulations : <ol style="list-style-type: none">1. Occupational Safety and Health Act2. Regulations for the Labelling and Hazard Communication of Hazardous Chemicals3. Road Traffic Safety Regulations



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| 4. Industrial Waste Storage and Disposal Regulations |
| 5. Hazard prevention standards for specific chemicals |
| 6. Assessment and Classification Administration of Hazardous Chemicals |
| 7. Permissible Exposure Limits of Hazardous Substances in the Work Environment |

Section 16 - Other Information

Literature references	1. RTECS Database, TOMES CPS CD-ROM, Vol.65, 2005	
	2. ChemWatch Database, 2005-1	
	3. Cheminfo Database, CCINFO CD-ROM, 2005-3	
	4. HSDB Database, TOMES CPS CO-ROM, Vol.65, 2005	
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	Name : X.Z.Lin	
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