



Safety Data Sheet


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Section 1 - Product and Company Identification

Product name : ST-02
Other names : --
Product use: Removing color on the color filter (Semiconductor, TFT-LCD Photolithography process)
Supplier's name: San Fu Chemical Co., Ltd., Shan Hua Plant
Supplier's address : 340 Hsiao Hsin Li, Shan-Hua District, Tainan City, Taiwan, R.O.C.
Supplier's phone : 886-6-5837608 Emergency phone : 886-6-5837608
FAX. : 886-6-5839498

Section 2 - Hazards Identification

Classification : 1. Skin Corrosion/Irritation Category 1 2. Serious Eye Damage/Eye Irritation Category 1
The Most Important Hazards and effect Label element : Corrosion
 ■ Hazard symbol : ■ Signal word : Danger
Hazard statement : 1. Cause serious skin burn and eye damage 2. Cause severe eyes damage
Precautionary statement : 1. If contact with eyes, flush with plenty of water. Get medical attention immediately. 2. Remove contaminated clothes immediately. 3. Wear appropriate protective gear, including clothing, gloves, chemical safety goggles and/or a full face shield.
Others Hazard : --

Section 3 - Composition/Information On Ingredients

Mixture:

Component or impurities contributing to the hazard	CAS No.	Concentration or concentration range (%)
Potassium hydroxide	≤ 25 %	1310-58-3
Alkanolamine	≤ 15 %	--
Dimethyl sulfoxide	≤ 20%	67-68-5
water	≤ 50%	7732-18-5
Surfactant	≤ 5 %	--



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Section 4 - First Aid Measures

<p>The First-aid Information:</p> <ul style="list-style-type: none">■ Inhalation: Provide the fresh air and seek medical attention immediately.■ Skin Contact: Wash the contaminated skin with large amount of water and take off the contaminated cloth. Seek the medical attention immediately.■ Eye Contact: Flush the contaminated eyes with large amount of water for at least several minutes and seek the medical attention immediately.■ Ingestion:<ol style="list-style-type: none">1. Give large amount of water to the patient.2. Avoid induce vomiting. (danger of perforation)3. Seek the medical attention immediately.4. Do not try to neutralize.
<p>The Most Important Symptoms and Hazardous Effects: Respiratory tract irritation, skin irritation, eye irritation.</p>
<p>Protection of First-aiders: Wear protective goggles, anti-corrosive gloves, protective cloth, avoid inhale vapor.</p>
<p>Notes to a Physician: strong bases, burn, pain</p>

Section 5 - Fire Fighting Measures

<p>Extinguishing Media:</p> <ol style="list-style-type: none">1. Chemical powder, foam, water spray2. Large fire: use water spray, fog or foam.
<p>Specific Hazards when Fire-fight:</p> <ol style="list-style-type: none">1. Moderate fire hazard when expose to heat or flame.2. Vapors are heavier than air. Vapors may travel to source of ignition and flash back.3. Vapors may form explosive mixtures with air.4. Above flash point, vapor-air mixtures are explosive.
<p>Specific Fire-fighting Procedure:</p> <ol style="list-style-type: none">1. Move the undamaged containers from fire area if safe to do so.2. Use water spray to cool containers exposed to fire.3. Stay away from the ends of tanks.4. For fires in cargo or storage area, cool containers with water from unmanned hose holder or monitor nozzles until fire is out. If this is impossible then take the following precautions: keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn.5. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.6. For tank, rail car, or tank truck: evacuation radius 800 meters (1/2 mile).7. Let the fire burn unless leak can be stopped immediately.8. Reduce vapors with water spray.9. Do not use high-pressure steam pressure on spills.10. Fight fire from protected location or safe distance. Water spray may be used to reduce vapors and to cool containers exposed to fire.11. Avoid inhalation of material or combustion by-products.12. Stay upwind and keep out of low areas.
<p>Specific Protection of Firefighters: As in any fire, wear a self-contained breathing apparatus in pressure demand, MSHA/NIOSH (approved or equivalent), anti-dust and anti-splash goggles,</p>



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protective gloves.

Section 6 - Accidental Release Measures

Personal Precautions:

1. Restrict access the area until completion of clean up.
2. Ensure clean up is conducted by trained personnel only.
3. Wear proper personal protective equipments.

Environmental Precautions: Avoid generating the dust, keeps well ventilation.

Methods for Cleaning up:

1. Avoid contact with spills.
2. Prevent from entering sewers or confined space.
3. If safe to do so, stop or reduce spills.
4. Absorb or dike spill with sand or other inert, stable, and non-flammable materials.
5. Small spills: Absorb with non-combustible material. The contaminated absorber is as dangerous as the leakage. Collect the contaminated absorber and leakage into the proper covered container with labels. Wash the spilled area with water. Small leakage could be diluted with large amount of water.
6. Large Spill: Contact the fire fighting unit, emergency control unit and supplier for help.

Section 7 - Handling and Storage

Handling:

1. The staff should receive proper training and inform the risk and safety handling method.
2. Empty tanks, containers, and pipes may have hazardous residue. Never weld, cut, or drill before cleaning up.
3. The inert gas could be placed in the container to reduce the possibility of the fire or the explosion.
4. Exit routes should be kept in unblocked.
5. Avoid producing vapor and mist, operating in well-ventilated area only. Handling amount of usage should be kept to a minimum. Separate the working area and storage place.
6. Wear appropriate personal protective equipments if necessary to avoid contact with the polluted chemicals.
7. Do not pour unused portion back into the container, which may contaminate the product.
8. Label the container, keep it tightly closed, and avoid physical damage of the container.

Storage:

1. Store in a cool, dry, well-ventilated area and out of direct sunlight. Keep quantity stored as small as possible. Keep away from sunshine, heat, and incompatible substances.
2. Consideration should be taken to install leak detection and alarm equipment for storage area.
3. Storage facilities should be made of fire and corrosion-resistant materials.
4. Use a grounded, non-sparking and corrosion-resistant ventilation system, approved explosion-proof equipment and intrinsically safe electrical systems.
5. The flooring should be impermeable to the product.
6. Make a threshold at the door and build a slope or a groove in front of the door to enable the fluid leakage to be emitted to a safe place.
7. The flooring where the product is stored should be impermeable to the product.
8. Make a threshold at the door and build a slope or a groove in front of the door to enable the fluid leakage to be emitted to a safe place.
9. Storage area should be clearly identified, clear of obstruction and accessible only to trained



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- and authorized personnel.
10. Keep storage area separate from work areas. Store away from work process and production areas, elevators, building and room exits or main aisles leading to exits.
 11. Have appropriate fire extinguishers and spill clean-up equipment in or near storage area.
 12. Inspect storage area periodically for damage or leaks.
 13. Inspect all incoming containers to ensure they are undamaged and properly labeled.
 14. Keep quantity stored as small as possible.
 15. Store in the suggested temperature (avoid higher than 50°C). If necessary, install the temperature alarm.
 16. Avoid bulk storage indoors. Store in isolated fireproof building, if possible.
 17. The storing basin shall be based on the ground with its base completely sealed from leakage, and shall be surrounded by a fluid-protective dike capable of carrying the entire volume of storage.

Section 8 - Exposure Controls & Personal Protection

Engineering measures:

1. 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.
2. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level, an approved respirator must be worn.

Control parameters			
TWA	STEL	Ceiling	Biological standards
--	--	3 ppm	--

Personal protective equipment:

- Respiratory Protection: If the exposure limit is exceeded and engineering controls are not feasible, wear an approved NIOSH respirator.
- Hand Protection: Wear impervious gloves.
- Eye Protection: Wear chemical splash goggles and face shield (8 inches minimum).
- Skin and Body Protection: Wear impervious boots, apron, or coveralls, as need.

Hygiene measures:

1. Remove contaminated clothing immediately. Discard or launder before rewearing. Inform laundry personnel of contaminant's hazards.
2. Do not eat, drink or smoke in work areas.
3. Wash hands thoroughly after handling this material.
4. Maintain good housekeeping.

Section 9 - Physical & Chemical Properties

Appearance: Light yellowish liquid	Odor: Sulfurous. (Slight.)
Color: Transparent	Melting Point: > 0°C (liquid form in the room temperature and atmosphere)
pH value: > 13.0	Boiling point/boiling range: > 100°C
Flammability: --	Flash point: > 90 °C



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Decomposition temp: --	Test method: Closed cup
Auto ignition temp: > 131°C	Explosion properties: --
Vapor pressure(21.1°C) : < 100 mmHg	Vapor density: < 1.0
Density: 1.2 ± 0.1	Solubility: Dissolve in water
log Kow: -1.31	Evaporation Rate: < 1

Section 10 - Stability & Reactivity Data

Stability: It's stable within the normal condition
Possible hazardous reactions under specific conditions: Irritated odor in high temperature, cause burn with serious condition. Avoid contact with acidic.
Conditions to avoid: --
Materials to avoid: Strong oxidizer, acid, peroxide, alkali metals, alkaline earth metals, halogens
Hazardous decomposition products: Generate CO and CO ₂ during burning. Avoid inhaling the highly poisonous CO.

Section 11 - Toxicological Information

Route of exposure: Skin, inhalation, ingestion, eyes
Symptoms: eye corrosion; skin corrosion; also it can cause corrosion of mucous membranes, severe esophageal burns and perforation of esophagus or stomach
Immediate Toxicity: <ol style="list-style-type: none">1. Skin: Mild toxicity, but may cause dermatitis with prolonged repeated contact.2. Inhalation: Vapor may cause the irritation of the respiratory system and chest pain, coughing, nausea, vomit, dizziness, and etc.3. Eye: Mild irritation, may cause eye lid inflammation and red eyes.4. Ingestion: Mild toxicity, systemic injury.<ul style="list-style-type: none">● LD₅₀: --● LD₅₀: --● LC₅₀: --
Specific effects : Inhale of vapor may easily cause skin corrosion and burn.

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: The toxic chemical may be decomposed into different compounds in



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our body; some will be discharged from breathing or urine, but some remain in our liver and kidney.

Mobility in soil: If release in the soil, will be decomposed by organism expectedly.

Other adverse effects: Poisonous to the aquatic livings.

Section 13 - Disposal Considerations

Methods of disposal:

1. Disposal management should follow the environmental regulation.
2. Disposal management from this products and emission standard should follow the environmental laws and regulations.

Section 14 - SDS Transport Information

UN classification number: --

Proper D.O.T Shipping Name: Photo-resist Remover

Hazard Class: Corrosion Category 8

Packing Group: Lorry Delivery

Marine pollution: none

Specific precautionary transport measures and conditions: According to the local environmental protection regulation, should examine the standard transferring equipment and certification.

Section 15 - Regulatory Information

Regulations:

1. Occupational Safety and Health Act
2. Regulations for the Labelling and Hazard Communication of Hazardous Chemicals
3. Road Traffic Safety Regulations
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
8. Public Hazardous Materials and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations.

Section 16 - Other Information

Literature references	1. RTECS Database, TOMES PLUS Disc, Vol. 68, 2006 2. ChemWatch Database, 2006-1 3. OHS MSDS Database, 2006 4. HSDB Database, TOMES PLUS Disc, Vol. 68, 2006	
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Remarks	Symbols Explanations: "--" No information is available at this time. "/" Not applicable to this substance.
<p>■ This information above has consulted national or international papers and manufacturer or supplier's provided information. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Users should make their own determination of the suitability of the information for their particular purposes.</p>	