


Number: 021

Section 1. Product and Company Identification

Product name: Propionic acid
Synonyms: -
Recommended use and Restrictions on use: Propionic acid salt, used restrain mould pharmaceutical and general fungicide for the bread; weed killer; Kind and wood chip antiseptic; Emulsifier; Plate the nickel solution; Fragrant pharmaceutical ester; Artificial fruit spices; Pharmacy; Cellulosic plastics of Propionic acid.
Manufacturer, Importer, or Supplier: Shiny Chemical Industrial Co., Ltd. Address: No.5, Yeong Gong 1 st Rd, Yeong An Dist., Kaohsiung 82841, Taiwan, R.O.C. Telephone: +886-7-8619171 ext. 711~714
Emergency telephone number: +886-7-8619171 ext. 711~714 Fax: +886-7-6222620

Section 2. Hazards Identification

Classification: <ol style="list-style-type: none">1. Acute toxicity (oral), Category 52. Acute toxicity (skin), Category 33. Skin corrosion/irritation, Category 14. Serious eye damage/eye irritation, Category 15. Flammable liquid, Category 3
Label elements:  Hazard pictograms: Flame, Corrosion, Skull and crossbones Signal word: Danger Hazard Statements: <ol style="list-style-type: none">1. Toxic if swallowed.2. Toxic in contact with skin.3. Causes severe skin burns and eye damage.4. Causes serious eye damage.5. Flammable liquid and vapour. Precautionary statements: <ol style="list-style-type: none">1. Do not breathe gas/fumes/vapor/mist.2. Wear appropriate protective clothing.

3. If have an accident or feel uncomfortable, seek for medical attention.

Other Hazards: -

Section 3. Composition/Information on Ingredients

Pure substance

Chemical Name: Propionic acid

Synonyms: Methyl acetic acid, Carboxyethane, Ethanecarboxylic acid, Ethylformic acid, Metacetic acid

CAS NO. : 79-09-4

Weight: 100%

Section 4. First Aid Procedures

Description of first aid measures:

• Inhalation:

1. Move it except the pollutant, or will move the fresh air place.
2. If have difficulty in breathing, is bestowed the oxygen by the medical personnel.
3. Seek medical treatment immediately.

• Skin contact:

1. Avoid contacting these chemicals directly; wash for at least 20 minutes of pollution position with warm water.
2. Get rid of clothes, shoes and leather products polluted (such as the watch belt, leather belt).
3. Should seek medical advice rapidly.

• Eye contact:

1. Open upper and lower eyelids immediately, wash for 20 minutes with warm water, prevent the sewage polluting another eyes not polluted.
2. Should seek medical advice as quickly as possible.

• Ingestion:

1. If patients have already lost consciousness or convulsion, can't offer any food to take.
2. Cough the mouth with freshwater.
3. Can't press for vomit.
4. Drink 240 to 300 mL water for a patient.
5. If the patient vomits naturally, should gargle repeatedly with water.
6. Seek medical advice as quickly as possible.

The most Important Symptoms and Hazardous Effects: Cause the redness, cornea burn, bubble, or organize corrode destroy.

Protection for emergency personnel: Use appropriate personal protective equipment such as class C clothing to take first aid in a safety area.

Notes to Physicians:

1. The patient considers offering the oxygen when sucking.
2. Avoid washing the stomach and causing vomiting.

Section 5. Firefighting Measures

Suitable extinguishing media: Carbon dioxide, the dried powder of chemistry, alcohol foam, or polymer foams.

Special hazards during firefighting:

1. The vapor is heavier than the air, will propagate to the distant place, if meet the fire source may cause the flash back.
2. May react and release the flammable hydrogen with some metal.
3. The airtight container is overheated for a long time may break.

Firefighting procedures:

1. If propionic acid set fire, lower the temperature with water fog.
2. Spray water in the farthest as much as possible.
3. Large fire of tank storage area, use unattended water fog control shelf or automatically swing water aim control.
4. Moved from the fire as much as possible and allow the fire to burn down.
5. Stay and locate in windward, keep away from the low-lying.
6. The tank safety valves sound already or change color should move from the area immediately.
7. Withdraw from this area and put out a fire from the safe distance and protected area.
8. Lie in the windward place to put out a fire in order to avoid the vapor and poisonous decompose materials.

Protective equipment for firefighters: The fire fighter must wear full body type chemistry protective clothing, air respirator, in case of necessity the overcoat covered with the aluminum quality resists to flash.

Section 6. Accidental Release Measures

Personal precautions:

1. Limit personnel enter, until totally clear in the overflowing area.
2. Responsible for the cleaning work by the trained person.
3. Wear proper personal protective equipment.

Environmental precautions:

1. Ventilate to the leaking out area.
2. Remove all may cause a fire source.
3. To notify the government of occupation safety and hygiene and environmental protective units.

Methods for cleaning up:

1. Don't touch, avoid leaking out and flow into the sewer air tightly area.
2. In safety permit condition, try to block and leak.
3. Use soil, sand or absorb materials to surround.
4. While letting out a small amount of outsides, can absorb material, put it on proper, has a cover, clear label container.
5. While letting out a large amount of outside, to make contact with fire control units, ERC and supplied company ask to help.

Section 7. Handling and Storage

Handling:

1. While using, keep away from the flame, spark and a fire source, and avoid forming droplets.
2. Prevent the vapour, droplet from releasing to the air in the workplace.
3. Try to use in a small amount in the designated ventilation facilities.
4. Emergency deal with equipment , fire-fighting equipment should set at any place can to use promptly.
5. Clearly labeling the container, when not using, need to shut tightly the container.

Storage:

1. Store at the shady, cool, dry and ventilated area, keep away from the incompatible materials, heat source and ignite source.
2. Store on proper, have labeled container, avoid to strike and damage.
3. Use the lighting facilities and ventilation facilities of prevention corrosion materials.
4. Limit stored amount and control officer to pass in and out the storing area.
5. Need to distinguish storing area from the general operation area.
6. Check whether the container is clashing, breaking or leaking out regularly.

Section 8. Exposure controls

Engineering controls:

1. The local exhaust or the entirety exhaust system should resist spark, have grounding and resist corrosion.

Control parameters

TWA	STEL	CEILING	BEIs
10 ppm	15 ppm	-	-

Personal protective equipment:

- Respiratory protection:
 1. The continuous air supply for respiratory protective equipment.
 2. Purify powder respiratory protective equipment.

<ul style="list-style-type: none"> • Hand protection: Teflon glove of prevention seepage. • Eye protection: <ol style="list-style-type: none"> 1. Safe goggles of chemistry. 2. Face covers equipment. • Skin and physical protection: Coverall, brogan of above-mentioned materials.
Hygiene measures: <ol style="list-style-type: none"> 1. Take off the pollution clothes as quickly as possible after the work. 2. Abandon after cleaning and must tell the washing personnel about the harmfulness of pollutants. 3. Forbid smoking or diet in the workplace. 4. After dealing with this material, must wash hands completely. 5. Keep the workplace clean.

Section 9. Physical and Chemical Properties

Appearance: Clear, Colorless, Oil form liquid	Odor: Stimulate stinking smell
Odor threshold: <ol style="list-style-type: none"> 1. 0.026~0.17 ppm (detect) 2. 0.033 ppm (perceive) 	Melting point: -22°C~-20.8°C
pH: 2.9 (0.1 M solution)	Boiling point/Boiling range: 141°C
Flammability (solid, gas): -	Flash point: 50.5°C
Decomposition temperature: -	Test method: -
Auto-ignition temperature: 466°C	Explosion limits: 2.9% ~ 12.1%
Vapor pressure: 2.9 mmHg	Vapor density: 2.55 (air=1)
Density: >0.992~0.994 (water=1)	Solubility: Dissolve in water
Partition coefficient (n-octanol/water, log K _{ow}): 0.33	Volatility rate: -

Section 10. Stability and Reactivity

Chemical stability: Stable under the normal state.
Possibility of hazardous reactions: <ol style="list-style-type: none"> 1. Alkali (include alkali metal)-Severe react production hot and pressure. 2. Active metal (such as the aluminum, zinc) - produce the flammable hydrogen gas. 3. Oxidant (such as Chromic Trioxide) - Fierce response or explode, increase the danger of breaking out a fire. 4. Corrosive to metal (such as iron, steel, brass, aluminum and lead).
Conditions to avoid: Temperature exceeding 52°C, flame.
Materials to avoid: Alkali (include the alkali metal), active metal (such as the

aluminum, zinc), Oxidant (such as Chromic Trioxide), metal (such as the iron, steel, brass, aluminum and lead).

Hazardous decomposition products: -

Section 11. Toxicological Information

Exposure Route: Skin contact, inhalation, ingestion, eyes touch.

Symptoms: Stimulate Sore throat, cough, and skin redness.

Acute toxicity:

- Inhalation:

1. There is not the human exposes study report.
2. May cause slightly to serious excitement feeling, depend on concentration.
3. The symptom includes the nose stimulating, sore throat, cough, hoarse, has difficulty in breathing and causes pleural effusion.

- Skin:

1. Cause the skin redness, pain, burn, bubbling, organize corroded and destroying.

- Eyes:

1. It will cause redness, pain, eyesight fuzzy if exposed to the vapor or dilute the solution.
2. It will cause the cornea burn to directly contact the high concentration solution, will cause corrode injury for a long time.

- Ingestion:

1. Cause mildly to heavy stimulus, depend on concentration. The symptom includes sore throat, abdominal pain, nausea and vomit.
2. Some food may be including low concentration, it doesn't cause uncomfortable.

- LD₅₀ (animal test, entry): 2,600 mg/kg (rat, ingestion)

- LD₅₀ (animal test, entry): 500 mg/kg (rabbit, skin)

- LC₅₀ (animal test, entry): -

- 495 mg/open test (rabbit, skin): It will cause serious stimulate.

Chronic / Long-term toxicity: It will cause skin inflammation (redness, dry, itchy) that skin has contacted for a long time.

Section 12. Ecological Information

Ecological toxicity:

1. LC₅₀ (fish): 188 mg/L/24 hour(s)
2. EC₅₀ (aquatic invertebrates): 50 mg/L/48 hour(s)
3. Bioconcentration factor (BCF): -

Persistence and degradability:

1. Some aerobic microorganism tests show, using sewages, activity mud to inoculate, and propionic acid will be resolved rapid.

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| <p>2. As release it to water, it may be the important way by aerobic microorganism resolve.</p> <p>3. As release it to the air, it is expected that produced oxyhydrogen free radical with photochemical reaction, half-life is about 13 days.</p> <ul style="list-style-type: none"> • Half-life (Air): - • Half-life (Water surface): - • Half-life (Groundwater): - • Half-life (Soil): - |
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Bioaccumulative potential: Will not be accumulated in the body.

Mobility in soil: As release it to the soil, propionic acid has high moving nature; it may be an important mechanism of microorganism resolve.
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Other adverse effects: -

Section 13. Disposal Considerations

Waste disposal:

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| <ol style="list-style-type: none"> 1. Deal with in accordance with the current regulation. 2. Incinerate, or put it in qualified burying field. |
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Section 14. Transport Information

United Nations Number (UN No.): 3463

UN Proper Shipping Name: Propionic acid

Transport Hazard classes: 8 (3)

Packaging Group: II

Marine pollutant (Yes/No): No

Specific Transport Measures and Precautionary Conditions: -

Section 15. Regulatory Information

Applicable Regulations:

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| <ol style="list-style-type: none"> 1. Labor Safety and Health Law. 2. Regulation of Labeling and Hazard Communication of Dangerous and Harmful Materials. 3. Organic solvent poisoning prevention rules. 4. Harmful substances concentration permission standards in the labor working environment. 5. Road Traffic Safety Rules. 6. Industrial waste storage and disposal facilities standard. 7. Public dangerous goods and High-pressure flammable gas setting standards & Safety management approach. |
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Section 16. Other Information

References	<ol style="list-style-type: none">1. RTECS database, TOMES PLUS, Vol.65 · 2005.2. HSDB database, TOMES PLUS, Vol.65 · 2005.3. New Jersey Hazardous Substance Fact Sheets database, TOMES PLUS, Vol.65, 2005.4. NIOSH/OSHA, Occupational Health Guidelines for Chemical Hazards, 1981.5. Material Safety Data Sheets, Genium Publishing Corporation, 1997.6. ChemWatch database, 2005-1.
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Notes	The symbol " - " in this sheet indicates no available information; the symbol " / " indicates the information is not applicable to the substance.