Number: 013

Section 1. Product and Company Identification

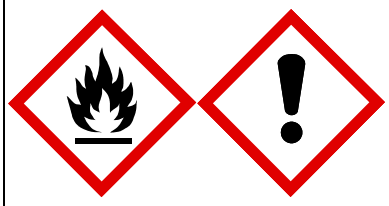
Product name: n-Butyl acetate
Synonyms: -
Recommended use and Restrictions on use: Solvent of nitrocellulose paint, leather processing, natural rubber and synthetic resin; water solvent.
Manufacturer, Importer, or Supplier: Shiny Chemical Industrial Co., Ltd. Address: No.5, Yeong Gong 1stRd, Yeong An 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:

1. Flammable liquid Category 2
2. Acute toxic substance (Inhalation), category 3
3. Corruption/Skin irritation, category 3
4. Specific target organ toxicity substances - single exposure, category 3
5. Serious damage/Eyes irritation, category 2B

Label elements:



Hazard pictograms: Flame, Skull and crossbones
Signal word: Warning
Hazard Statements:

1. Highly flammable liquid and vapour.
2. May cause drowsiness or dizziness.
3. Causes eye irritation.

Precautionary statements:

1. Keep away from the child.
2. Keep containers in a well-ventilated place.
3. Avoid contact with eyes.

Other Hazards: -

Section 3. Composition/Information on Ingredients

Pure substance

Chemical Name: n-Butyl Acetate
Synonyms: n-Butyl Acetate, Acetic acid, n-Butyl ester, l-Butyl acetate, Butyl acetate, Butyl ethanoate.
CAS NO. : 123-86-4
Weight: 100%

Section 4. First Aid Procedures

Description of first aid measures:

• Inhalation:

1. If the patient is unconsciousness, be sure the personal protection procedure had been done and then save the patient.
2. Remove the pollutant sources, or move affected person to breath fresh air.
3. If the affected person stop breathing, call the trained members to proceed artificial respiration; once the heart stop beating, proceed CPR.
4. See the physician as soon as possible.

• Skin contact:

1. Gently brush or suck the superfluous chemicals.
2. Wash thoroughly with non-matte soap and water at least 20 minutes until the pollutants cleaned.
3. Take off the contaminated clothes, shoes and leather ornaments (such as belt, watch belt) in showering.
4. If the irritation feeling did not release, see a physician as soon as possible.
5. The contaminated clothes, boots and leather ornaments should be decontamination and washed thoroughly before discard or use again.

• Eye contact:

1. In case of direct contact, flush eyes with gentle warm water for at least 20 minutes.
2. Be careful not to contaminate the other eye while flushing the contaminated eye.
3. Repeat flush the eye while still feel the irritation.
4. See a physician as soon as possible.

• Ingestion:

1. If the patient is going to lose of conscious, unconsciousness or seizure, do not feed anything orally.
2. If the patient is conscious clear, instruct the patient gargle with water.
3. Do not induce vomiting.

4. Instruct the patient to drink 240~300 mL water. 5. If the patient spontaneous vomiting, instruct the patient to bent down to decrease the inhalation risk, also instruct the patient to gargle and keep drinking. 6. If the affected person stop breathing, call the trained members to proceed artificial respiration; once the heart stop beating, proceed CPR. 7. Refer for medical attention immediately.
The most Important Symptoms and Hazardous Effects: High concentration cause the nervous system be constrained.
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: -

Section 5. Firefighting Measures

Suitable extinguishing media: 1. Carbon dioxide. 2. Chemical-resistant powder. 3. Alcohol-resistant foam.
Special hazards during firefighting: 1. Explosive vapor will be formed if Flammable liquid and air mix. 2. Vapor can convey far away. If the air temperature higher than the flash point will produce tempering. 3. The liquid will cover at the surface of water and grow the fire. 4. The vessels in the fire place may crack or explode. 5. The chemical substance will accumulated in closed area, which will increase the flammable possibility and the toxic hazardous.
Firefighting procedures: 1. Evacuate and put out the fire in a safe distance or in a protected shield. 2. Stay at the upper hand place to avoid the danger vapor and the toxic decomposed substances. 3. Try to stop the leakage before put off the fire. If the procedure cannot be done and no other dangerous condition. Let the fire end. Extinguish the fire without stop the leaking. The vapor will mix with the air and fired. 4. Isolate the materials not on fire and protect the members. 5. Move the container away from the firing place under the safety condition. 6. Apply mist to cool down the tanks or the containers which exposed at the fire place. 7. Extinguish the fire with mist may not work unless the firemen had been well trained with how to put off the fire caused by flammable liquids.

8. If the leaking does not invoke any fire, spray mist to disperse the vapors and try to protect the members whom is stopping the leakage.
9. Water column does not work with extinguishing fire.
10. Large region of large-scale fire: Apply automatic kits to control frame or auto-spray nozzle until the fire been put off.
11. Try to withdrawal all members and let the fire burned out.
12. Stay away from the storage tanks.
13. Immediately evacuate all people while the tank safety valve alarmed or changed color by firing.
14. The members without wearing the specific protective equipment cannot enter the fire place.

Protective equipment for firefighters: The firemen should wear the respirators, protective gloves and fire clothing.

Section 6. Accidental Release Measures

Personal precautions:

1. Confine members to enter the pollutant area before the area cleaned thoroughly.
2. Make sure the trained people to finish the clean mission.
3. Wear the adequate personal protective equipment.

Environmental precautions:

1. Ventilate the area.
2. Put off or remove all firing sources.
3. Inform the Government's environmental health and safety-related units.

Methods for cleaning up:

1. Do not touch the leakage.
2. Avoid the leakage flowing to the sewer and drainage system or airtight space.
3. Trying to stop or decrease the leakage under the safety circumstance.
4. Absorb leakage substances with sands, dirt or other materials which do not react with the leakage substances and to contain it.
5. A small amount of leakage: Absorb the leakage substance with the materials which do not react with it. The pollutant absorbing materials is as dangerous as the leaking substance; discard them in the covered and labeled vessels. Pour the leakage area with water. The small amount of leakage can be diluted with large amount of water.
6. A large amount of leakage: Contact with the fire bureau, emergency processing units and the supplier for help.

Section 7. Handling and Storage

Handling:

1. The chemical substance is flammable and toxic liquid, while handling, start the engineer control and make the best use of personal protective apparatus; the workers should know the danger of the substance and be well trained to use the substance safely.
2. If the substance released, all members should wear the respiratory protective apparatus and evacuate immediately until the serious problem had been clarified.
3. Escape respiratory should be set in the working area.
4. Leaking or poor ventilation should be reported immediately.
5. Do not touch the chemical substance (pollutant equipment included) before wearing the protective apparatus.
6. Familiar with the symptoms of poisoning; report to the relevant units while feel ill.
7. Make sure that the vessels and the receiver transport apparatus and containers connected equal-potential when the preparation task is not processed in the airtight system.
8. The empty barrels, vessels and pipe line may remain the dangerous residual. Do not proceed welding, cutting, drilling or other task which could heat these things mentioned above until they are cleaned.
9. Fill inert gas into the storage barrels or tanks to eliminate the danger of firing or explosion.
10. Consider to set leakage and fire detection system, adequate automatic fire-proof system and plenty of emergency treatment apparatus in the heavy loading area.
11. Avoid making mist or vapor. Operate at the well ventilated area and apply the minimum dose. Separate the operation area and storage area.
12. Do not use the chemical substance with incompatible materials (such as strong oxidative reagent) to avoid increasing the risk of firing and explosion.
13. Store the chemical substance in the vessels composed of compatible substances. Be careful not to spill out while packaging.
14. Check if the vessels are leaking.
15. Do not use air or inert gas to pump out the liquid from the vessels.
16. Unless the preparation area is isolated by fire-tolerant structures, do not process the preparation tasks.
17. Apply the certificated flammable liquid reservation vessels and preparation apparatus.
18. Do not pour the contaminated liquid back to the vessels.

19. Label the vessels, and keep them well sealed which will not be damaged.
20. Set plenty of emergency devices to prevent fire and leakage, etc.

Storage:

1. Stored at the cool, dry, well ventilation and free of direct sunlight, keep away from heating source, firing source and incompatible substances.
2. The storage apparatus should be composed of fire-proof materials.
3. The floor should be composed of non-permeability materials in case that chemical substance is absorbed.
4. Set the threshold at the entrance, the slope or digging a trench to release the leaking substances to the safety places.
5. Storage area should be labeled clearly and no obstacles and allow the trained people to enter.
6. Storage area should be separated from the working area; keep away from the lift, building, room entrance or the main storage avenue.
7. Around the storage area should set the adequate fire-extinguish devices and leakage processing devices.
8. Check the storage vessels periodically to identify the leakage and expired date.
9. Examine the new vessels are well labeled and not broken.
10. Limit the storage amount.
11. Fill the leakage substance into the storage vessels which composed of compatible materials.
12. Storage barrels should be grounded and connected with other devices equal-potential.
13. The barrels stored with flammable liquid should be installed with pressure release valve and vacuum release valve.
14. Follow the instructions of the chemical product manufactures or suppliers to store. If necessary, install the temperature detection alarm to warn the abnormal temperature.
15. Stored with the solid, no crack and well labeled vessels.
16. Empty barrels should not be placed at the storage area.
17. Keep the empty barrels tightly closed, dangerous residuals may exist.
18. The certified fire-proof closet and room in storage area should be located at the fire-proof building as possible.

Section 8. Exposure controls

Engineering controls:

1. Apply the local exhaust device when deal with a small amount of chemical substance.
2. The producing process should be conducted in an airtight space or isolate the

operators when deal with a large amount of chemical substance.			
Control parameters			
TWA	STEL	CEILING	BEIs
150 ppm	187.5 ppm	-	-

Personal protective equipment:

• Respiratory protection:

1. Below 1,500 ppm: Breathing apparatus with organic vapor filter. Breathing apparatus with air supply.
2. Below 1,700 ppm: Breathing apparatus with organic vapor filter, motor air-clean type, airline supplied and self-contain.
3. Concentration Unknown: Positive pressure self-contain air breathing apparatus. Positive pressure full-face airline supplied plus Positive pressure self-contain air breathing apparatus.
4. Life Saving: Gas mask with organic vapor filter. Life-saving type self-contain breathing apparatus.

• Hand protection: An anti-leaking glove composed of 4H is better.

• Eye protection: Chemical anti-spam, Spectacles, Face protecting mask.

• Skin and physical protection: Coveralls working clothes and working boots composed of rubber materials.

Hygiene measures:

1. Taking off the clothes of pollution quickly after the work, do not dress or abandon before cleaning, and the laundry must be informed the danger of the pollutants.
2. Forbid smoking or diet in the workplace.
3. After dealing with the material, washing hands thoroughly.
4. Keep the working place clean.

Section 9. Physical and Chemical Properties

Appearance: Colorless liquid	Odor: Fruit flavor
Odor threshold: 1. 0.063 ~ 7.4 ppm (detection) 2. 0.038 ~ 12 ppm (sense)	Melting point: -77.9°C
pH: -	Boiling point/Boiling range: 126.3°C
Flammability (solid, gas): -	Flash point: 28°C
Decomposition temperature: -	Test method: close cup
Auto-ignition temperature: 425°C	Explosion limits: 1.7% ~ 7.6%
Vapor pressure: 15 mmHg (25°C)	Vapor density: 4 (air=1)
Density: 0.882 (g/cm^3) (Water=1) (25°C)	Solubility: 7 g/L water (20°C)
Partition coefficient (n-octanol/water, log	Volatility rate: 12 (Ethyl ether=1)

K_{ow}): 1.79 ~ 2.06	

Section 10. Stability and Reactivity

Chemical stability: Stable in normal environment.
Possibility of hazardous reactions: 1. Strong Oxidants (such as Nitrate, Perchlorate, Peroxides): Increase the risk of fire explosion. 2. Strong acid or strong base: Decompose (hydrolysis) reaction. 3. Third class potassium: Lead to fire.
Conditions to avoid: Flame, Sparks, Static electric, Heat, Ignition source, Water vapor.
Materials to avoid: 1. Strong Oxidants. 2. Strong acid or strong base. 3. Third class potassium.
Hazardous decomposition products: -

Section 11. Toxicological Information

Exposure Route: Skin, Inhalation, Ingestion, Eye.
Symptoms: 1. Irritation 2. Dizziness 3. Headache 4. Nausea 5. Vomiting 6. Move in-concordance 7. Unconsciousness 8. Red eyes 9. Tears
Acute toxicity: • Inhalation: 1. Inhaling the vapors may irritate the nose and pharyngeal, the irritation increase with the concentration. 2. Exposed to 15 ~ 295 ppm from 2 minutes to 4 hours will irritate the nose and pharyngeal slightly. 3. Exposed to more than 3,300 ppm of concentration will be very irritating and can not stand along. 4. Exposed to the very high concentration will develop the central nervous system constrained symptoms: headache, dizzy, vomiting and unconsciousness. • Skin:

1. The liquid may cause the irritation.
2. Absorbed through skin, the symptom is similar with the ingestion route.

• Eyes:

1. The vapors or the liquid will irritate eyes, exposed to less than 200 ~ 300 ppm is slightly irritated.
2. Exposed to over 3,300 ppm will irritate obviously, exposed to higher concentration makes the red eyes and tears.
3. The eyes irritation cause by liquid splashing will recover during 48 hours.

• Ingestion:

1. Irritate to oral and pharyngeal.
2. Ingest overdose will develop the central nervous system constrained symptoms: headache, dizzy, vomiting.

• LD_{50} (animal test, entry): 13,100 mg/kg (rat, swallow).
• LC_{50} (animal test, entry): 2,000 ppm/4 hour(s) (rat, inhalation).
• 500 mg/24 hour(s) (rabbit, skin): Moderate irritation.
• 100 mg/24 hour(s) (rabbit, eyes): Moderate irritation.

Chronic / Long-term toxicity:

1. Long term exposure or re-exposure will develop skin dry, cracked and irritation evidenced with Dermatitis.
2. 1,500 ppm/7 hour(s) (Pregnant 7 ~ 16 days female rat, Inhalation) make the embryo poisoned and abnormal development.

Section 12. Ecological Information

Ecological toxicity:

1. LC_{50} (fish): 18 mg/L/96 hour(s)
2. EC_{50} (aquatic invertebrates): -
3. Bioconcentration factor (BCF): 4 ~ 14

Persistence and degradability:

1. BOD: 0.15 ~ 0.5 LB/LB (5 days).
2. It is expected with the bio-degrade reaction once the substance released to water.
3. The half-life is 6 days to react with free hydroxyl radical once released into the atmosphere.
4. The substance is moderate toxicity to the aquatic life.

• Half-life (Air): 144 hours
• Half-life (Water surface): 178 ~ 27,156 hours
• Half-life (Groundwater): -
• Half-life (Soil): -

Bioaccumulative potential: Might be not able to accumulate. In the animal model,

the substance is found to degrade as acetate and butane, expelled through urine.
Mobility in soil: -
Other adverse effects: -

Section 13. Disposal Considerations

Waste disposal: 1. Consult the relevant regulation to deal with. 2. Discard the waste according to the storage condition. 3. Take specific sanitary landfills or incinerators processing method.

Section 14. Transport Information

United Nations Number (UN No.): 1123
UN Proper Shipping Name: Butyl acetates
Transport Hazard classes: 3
Packaging Group: II
Marine pollutant (Yes/No): No
Specific Transport Measures and Precautionary Conditions: -

Section 15. Regulatory Information

Applicable Regulations: 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.

Section 16. Other Information

References	1. CHEMINFO Database · CCINFO CD · 2005-2 2. RTECS Database · TOMES PLUS CD · Vol.63 · 2005 3. HSDB Database · TOMES PLUS CD · Vol.63 · 2005 4. ChemWatch Database · 2004-4
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Revision Date	2024/03/08

Notes	The symbol " - " in this sheet indicates no available information; the symbol " / " indicates the information is not applicable to the substance.