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Number : 13

Section 1: Product and Company Identification

Product Name : n-Butyl acetate
Other's Name : -
Recommended use and Restrictions on use: Solvent of nitrocellulose paint, Bo leather processing, Spice, flavor extract, natural rubber and synthetic resin ; water solvent
Manufacturer Name or Supplier Name : Shiny Chemical Industrial Co., Ltd. Address : No.5, Yeong Gong 1st Rd., Yeong An Dist., Kaohsiung City 82841, Taiwan, R.O.C.
Telephone : +886-7- 8619171 # 711~714
Emergency Phone No : +886-7- 8619171#711~714 Fax : +886-7- 6222620

Section 2 : Hazards Identification

Hazard Material Category : Flammable liquid Category NO.2, Acute toxic substance category No.3 (Inhalation), Corruption/Skin irritation category No.3, Specific target organ toxicity substances - repeated exposure No.3, Serious damage/Eyes irritation category No.2B.
Label Content : 
Label Statements : Flammable liquid. Toxicity.
Signal Words : Danger
Hazard Statements : <ol style="list-style-type: none">1. Highly flammable liquid and vapour2. Toxic if inhaled3. Causes skin irritation4. May cause drowsiness or dizziness5. Causes eye irritation
Precautionary Statements : <ol style="list-style-type: none">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 Materials

Chemical Name : n-Butyl Acetate
Synonymous : n-Butyl Acetate. Acetic acid. n-Butyl ester. 1-Butyl acetate. Butyl acetate. Butyl ethanoate.
CAS No. : 123-86-4



By Weight : 100%

Section 4 : First Aid Measures

The First aid Measures for Different Exposure Routes :

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.

Eyes 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 Protection of First-Aiders :

High concentration cause the nervous system be constrained



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The Protection of First-Aiders : Use appropriate personal protective equipment such as class C clothing to take first aid in a safety area

Notes to Physicians: -

Section 5: Fire Fighting Measures

Suitable Fire Extinguishing Media : Carbon dioxide. Chemical-resistant wder. Alcohol-resistant foam.

Specific Hazards May be Encountered During Fire-Fighting:

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.

Specific Fire-Fighting Method :

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.

Specific Protective Equipment of the Firemen:

The firemen should wear the respirators, protective gloves and fire clothing.



Section 6 : Accidental Leak Methods

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.

Environment Needing Attention :

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

Spill Cleanup Measure :

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 Methods

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.



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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



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- 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 and Personal Protection

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.

Guideline Information

TWA	TLV-STEL	CEILING	BEIs
150ppm	187.5ppm	-	-

Personal Protective Equipment :

Breathing Protection :

1. Below 1500ppm : Breathing apparatus with organic vapor filter. Breathing apparatus with air supply.
2. Below 1700ppm : 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 Description :

An anti-leaking glove composed of 4H is better.

Eye/Face Protection : Chemical anti-slam. Spectacles. Face protecting mask.

Skin and Body Protection Description :

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.



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3. After dealing with the material, washing hands thoroughly.
4. Keep the working place clean.

Section 9 : Physical and Chemical Properties

Physical State/Appearance: Colorless liquid.	Odor: Fruit flavor
Odor Threshold: 0.063-7.4ppm (Detection)、0.038-12ppm(Sense)	Melting Point : -77.9℃
pH value : -	Boiling Point/Range : 126.3 ℃
Flammability (Solid, Gas) : -	Flash Point : 22℃
Decompose Temperature : —	Test Method : Close cup
Auto-ignition Temperature : 425℃	Explosion limits: 1.7 % ~ 7.6 %
Vapor Pressure : 15 mmHg @25℃	Vapor Density : 4 (Air=1)
Density : 0.882 (Water=1)	Solubility : 7 g/L water@20℃
Log Kow : 1.79-2.06	Evaporation Rate : 25 (ether=100)

Section 10 : Stability and Reactivity

Chemical Stability: Stable in normal environment
Possible Danger Reacts Under the Special State: <ol style="list-style-type: none"> 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.
Incompatible with Other Materials: Strong Oxidants. Strong acid or strong base. Third class potassium.
Hazardous Decomposition Products: —

Section 11 : Toxicological Information

Exposure Route: Skin. Inhalation. Ingestion. Eye.
Signs/Symptoms: Irritation. Dizziness. Headache. Nausea. Vomiting. Move in-concordance. Unconsciousness. Red eyes. Tears.
Acute Toxicity : Skin Contact : <ol style="list-style-type: none"> 1. The liquid may cause the irritation. 2. Absorbed through skin, the symptom is similar with the ingestion route.
Inhalation : <ol style="list-style-type: none"> 1. Inhaling the vapors may irritate the nose and pharyngeal, the irritation increase with



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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 3300ppm 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.

Ingestion :

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

Eye Contact :

1. The vapors or the liquid will irritate eyes, exposed to less than 200~300ppm is slightly irritated.
2. Exposed to over 3,300ppm 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.

LD50(Testing Animal, Absorption Route) : 13100 mg/kg(Rat、Swallow)

LC50(Testing Animal, Absorption Route) : 2000 ppm/4H(Rat、Inhalation)

500mg/24H(Rabbit, Skin) : Moderate irritation.

100ppm/(Rabbit, Eyes) : Moderate irritation.

Chronic Toxicity or Long Term Effects on Humans :

1. Long term exposure or re-exposure will develop skin dry, cracked and irritation evidenced with Dermatitis.
1500 ppm/7H (Pregnant 7-16 days female rat, Inhalation) make the embryo poisoned and abnormal development.

Section 12: Ecological Information

Ecotoxicity :

LC50 (Fish) : 18mg/l/96H

EC50 (Aquatic invertebrate) : —

BCF : 4—14

The Persistence and Degradability:

1. BOD : 0.15~0.5LB/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 appearance) : 178~27156 hours

Half-life (underground water) : —

Half-life (Soil) : —



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Bio-accumulative 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

Methods of 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.





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Section 14: Transport Information

United Nations Number(UN No) : 1123
UN Proper Shipping Name : N-butyl acetate
Transport Hazard Class : Class 3 flammable liquid
Packing Group : II
Marine Pollutant(Yes/No): No
Specific Transport Measures and Precautionary Conditions: —

Section 15: Regulatory Information

<p>Applicable Regulation:</p> <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.

Section 16: Additional Information

References	<ol style="list-style-type: none"> 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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