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1. Product and Supplier Identification

- A. Product Name : Butyl Acetate
- B. Recommended Use and Restrictions on Use
- Recommended Use : Solvent(paints, resin, inks, adhesives), Organic synthesis, etc(detergent, synthetic leather)
 - Restrictions on Use : Restrict except for recommended use
- C. Manufacturer/Supplier/Distributor Identification
- Company Name : Korea Alcohol Industrial Co., LTD.
 - Address
 - . Headquarters : 14, Tapsil-ro 35beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, South Korea
 - . Ulsan Office/Plant : 66, Sanggae-ro, Nam-gu, Ulsan
 - Information Service or Emergency Tel. : [Http://www.ka.co.kr](http://www.ka.co.kr) / (+82)031-881-8100, 052-259-4761~2
 - Division : Business Department, Environmental Safety Team

2. Hazards Identification

- A. Classification
- Flammable Liquid Category 2
(Flash Point < 23°C, Boiling point > 35°C)
- Specific Target Organ Toxicity(Single Exposure) Category 3 (Narcotic effects)
- Specific Target Organ Toxicity(Single Exposure) Category 3 (Respiratory tract irritation)
- B. Warning
- Label


 - Hazard Communication : DANGER!
 - Label Element
 - H225 Highly flammable Liquid and Vapor
 - H335 May cause irritation to the respiratory tract
 - H336 May cause drowsiness or dizziness
 - Terms for Precaution
 - Precaution
 - P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 - P233 Keep container tightly closed.
 - P240 Ground/Bond container and receiving equipment.
 - P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 - P242 Use only non-sparking tools.
 - P243 Take precautionary measures against static discharge.
 - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 - P271 Use only outdoors or in a well-ventilated area
 - P280 Wear protective gloves/protective clothing/eye protection/face protection

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- Response
 - P303+P361+P353 If on skin(or hair) Take off immediately all contaminated clothing
Rinse skin with water/shower.
 - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 - P370+P378 In case of fire, use water spray/alcohol resistant foam for extinction.
- Storage
 - P403+P233 Store in a well ventilated place. keep closed tightly.
 - P403+P235 Store in a well-ventilated place and keep cooling
 - P405 Store locked up.
- Disposal
 - P501 Dispose of contents/ container by incineration or recycle.

C. Other

○ NFPA

- Health 1
- Flammability 3
- Reactivity 0

3. Composition

Chemical name : Butyl Acetate
 Synonyms : Butyl Acetate
 CAS number : 123-86-4

Content(%) :

Name	Trade names and Synonyms	KE NO.	Content (wt%)
Butyl Acetate	n-Butyl Acetate; Acetic acid n-butyl ester; Butyl ethanoate	KE-04179	99.5 wt%

4. First Aid Measures

A. Eye contact

Do not rub your eyes.

Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

Get medical attention immediately.

B. Skin contact

Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Laundering enough contaminated clothing before reuse.

Get medical attention immediately.

C. Inhalation

When exposed to large amounts of steam and mist, move to fresh air.

Take specific treatment if needed.

Get medical attention immediately.

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D. Ingestion

Please be advised by doctor whether induction of vomit is demanded or not.

Rinse your mouth with water immediately.

Get medical attention immediately.

F. Notes to physician

Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. Fire Fighting Measure

A. Suitable(or unsuitable) extinguish media

Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

flammable liquids and vapors.

Violent polymerization may cause fire and explosion.

Vapors can be transferred to the ignition sources of ignition.

May form explosive mixture at or above flash point.

Containers may explode on heating.

Highly flammable : Easily ignited by heat, sparks and flames.

Leaks may present a fire/explosion hazard.

Vapors are explosive at room, outdoors, and at the sewers.

Vapors may form explosive mixtures with air.

Vapors may travel to the source of ignition and backfire

Inhalation and contact may irritate or burn the skin and eyes.

C. Special protective actions for firefighters

Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

Inform the fire department Let me know the location of fire and harmful characteristics.

Avoid inhalation of materials or combustion by-products.

Do not access if the tank on fire.

Vapor or gas is burned at distant ignition sources can be spread quickly.

Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. Accidental release measures

A. Personal precautions

Ventilate closed spaces before entering.

Be sure to work your way back and evacuate someone holding the wind.

Move container to safe area from the leak area.

Do not direct water at spill or source of leak.

B. Environment precautions

Prevent runoff and contact with waterways, drains or sewers.

If large amounts have been spilled, inform the relevant authorities.

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- C. Methods for cleaning up
- Small spills
sand or other non-combustible material, please let use absorption.
Wipe off the solvent.
Dike for later disposal.
Do not use plastic containers.
 - Large spills
Stay upwind and keep out of low areas. Dike for later disposal.
Notification to central government, local government. When emissions at least of the standard amount
Dispose of waste in accordance with local regulation.
Appropriate container for disposal of spilled material collected.

7. Handling and Storage

- A. Precaution for safe handling
Avoid direct physical contact.
Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
Comply with all applicable laws and regulations for handling
Dealing only with a well-ventilated place.
Do not inhale the steam prolonged or repeated.
Avoid contact with heat, sparks, flame or other ignition sources.
- B. Conditions for safe storage, including any incompatibilities
Save applicable laws and regulations.
Do not apply any physical shock to container.
Avoid direct sunlight.
Keep in the original container.
Please pay attention to incompatibilities materials and conditions to avoid.
Collected them in sealed containers.

8. Exposure controls/personal protection

- A. Allowable contents
- Domestic regulation : TWA – 150ppm
STEL – 200ppm
 - ACGIH : TWA – 50 ppm
STEL – 150 ppm
 - Biological exposure standard : Not available
- B. Engineering Controls
Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.
- C. Personal protection
- Respiratory protection
Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

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Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any chemical cartridge respirator with organic vapor cartridge(s).

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

○ Eye protection

Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ Hand protection

Wear appropriate chemical resistant glove.

○ Body protection

Wear appropriate chemical resistant protective clothing.

9. Physical and Chemical properties

A. Appearance	:	Liquid, Colorless	※Source : ICSC
B. Odor	:	Mild, Fruity odor	※Source : ECHA Registered substances
C. Odor threshold	:	No data	
D. pH	:	6.2 (20°C)	※Source : ECHA
E. Melting/Freezing point	:	-78°C	※Source : ICSC, HSDB
F. Boiling point	:	126.1 °C	※Source : HSDB
G. Flash point	:	22°C(CC)	※Source : ICSC
H. Evaporation ratio	:	1 (Butyl Acetate=1)	
I. Flammable(solid, gas)	:	No data	
J. Ignition or explosion range	:	1.2 / 7.6%	※Source : ICSC
K. Vapor pressure	:	11.5 mmHg (25°C)	※Source : HSDB
L. Solubility	:	8.4g/L (25°C)	※Source : Chem id plus
M. Vapor density	:	4.0 (air = 1)	※Source : ICSC, HSDB
N. Specific gravity	:	0.88 (water = 1)	※Source : HSDB
O. n-octanol/water partition coeff.	:	1.78(Log Kow)	※Source : HSDB
P. Autoignition temperature	:	415°C(EU Method A.15, GLP)	※Source : ICSC
Q. Decomposition temperature	:	No data	
R. Viscosity	:	0.732cP at 20°C 2)	
S. Molecular formular/Weight	:	CH ₃ COOC ₄ H ₉ / 116.16	※Source : HSDB

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10. Stability and Reactivity

- A. Chemical stability & Possibility of hazardous reactions : This material is stable under recommended storage and handling conditions.
Hazardous Polymerization will not occur.
- C. Conditions to avoid : Avoid contact with incompatible materials and condition.
Avoid contact with heat, sparks, flame or other ignition sources.
- D. Material to avoid : Not available
- E. Hazardous decomposition materials : Not available

11. Toxicological Information

- A. Primary routes of entry
- Respiratory tracts : May cause respiratory irritation.
 - Oral contact : No data
 - Eye, Skin contact : No data
- B. Effects by acute and chronic exposure
- Acute toxicity
 - Oral : LD50 12.2 ml/kg Rat (ECHA)
 - Dermal : LD50 > 16 mL/kg Rabbit (ECHA)
 - Inhalation : Steam LC50 > 4.9 mg/l 4 hr Rat (ECHA)
 - Skin corrosive or Irritation : Skin corrosion/irritation test using rabbit does not result in irritation. OECD TG 404 No irritation from rabbits and man. (NITE(2009))
 - Acute eye damages or Irritation : Eye irritation does not cause eye irritation, severe eye damage / irritation.
Conjunctival index : 0.33/4, iris index : 0.56/2,
Conjunctival edema index : 1/3, Corneal index : 0.33/4, OECD TG 405, GLP
 - Respiratory hypersensitivity : Not available
 - Skin hypersensitivity : Buehler test results using guinea pigs showed non-irritability OECD TG 406
 - Carcinogenic : Not available
 - Germ cells mutagenicity : Mutation test for bacterial return using in vitro microorganisms, negative, with or without metabolic activity. OECD Guideline 471 In vivo mammalian erythrocyte micronuclear test results, negative. OECD Guideline 474
 - Reproductive toxicity : Second-generation toxicity tests on rats showed a decrease in body weight, weight gain, and food intake from 1,500 ppm to 2,000 ppm. NOAELsystemic toxicity, adult rats=750 ppm nominal OECD TG 416, GLP As a result of fetal developmental toxicity test on rats, body weight and

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liver weight reduction, baby size reduction and rib anomaly were observed, but it was judged that the maternal toxicity was higher than developmental toxicity. NOAEL maternal toxicity =2.5 mg/L air nominal, NOAEL teratogenicity=10 mg/L air nominal GLP, OECD TG 414

- Specific Target Organ Toxicity (single exposure)
 - : Causes central nervous system disorders, pulmonary edema, and respiratory irritation in humans.
 - Target organ: central nervous system, respiratory system
- Specific Target Organ Toxicity (repeated exposure)
 - : <Analogous substance CAS No. 71-36-3>
 - In rats, the central nervous system abnormality such as ataxia and activity deterioration was observed 2 to 3 minutes after exposure to the 600 mg / kg group at 90 day repeated dose oral administration of rodent. Restored within 1 hour. It appears to be an alcohol effect. No other special effects were observed. NOAEL=level:125 mg/kg bw/day nominal EPA OTS 798.2650, GLP Inhalation toxicity test for 90 days in rats showed acute and short-term symptoms of activity decline at medium and highest concentrations. Weight and food intake, and nasal upper respiratory irritation symptoms were observed. NOAEC=500ppm GLP, EPA OTS 798.2450
- Aspiration hazards : No data

12. Ecological Information

- A. Aquatic / Terrestrial / Ecology toxicity
 - Fish : ECHA LC50 18 mg/l 96 hr Pimephales promelas (Water type OECD TG 203)
 - Crustaceans : ECHA EC50 44 mg/l 48 hr Daphnia magna
 - Algae : Not available
- B. Persistence and Biodegradability
 - Persistence : ECHA 2.3 log Kow (25 °C, OECD TG 117)
 - Biodegradability : No data
- C. Bioaccumulation
 - Biodegradability : 83% 28 day (OECD TG 301D), Biodegradability = 98 (%) (NITE)
 - Bioaccumulation : No data
- D. Soil mobility : No data
- F. Other hazardous : No data

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13. Disposal Considerations

A. Method of disposal

Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.

If water separation is possible, pre-process with Water separation process.

Dispose by incineration.

B. Caution

The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

Dispose of waste in accordance with all applicable laws and regulations.

14. Transport Information

- A. UN number : 1123
- B. UN Shipping name : BUTYL ACETATE
- C. Hazard Class(Transport) : 3
- D. Packing class : II
- E. Marine pollutant : Np
- F. EmS code
 - Fire : F-E (Non-water-reactive flammable liquids)
 - Spill : S-D (Flammable liquids)

15. Regulatory Information

- A. Occupation Safety and Health Acts
 - Working environment measurement materials : Buthyl Acetate, Cycle : 6 Month
 - Exposure standard setting materials : Buthyl Acetate
 - Managed Hazardous Materials : Buthyl Acetate, Cycle : 6 Month
 - Special medical examination material : not applicable
 - Manufacture Restriction Materials : not applicable
 - Need Permissioin Materials : not applicable
 - Need PSM Materials : Applicable(Flammable liquids)
- B. Harmful chemical substance Management Acts
 - Toxic Materials : not applicable
 - Emission Survey Materials : not applicable
 - Accident Prepare Materials : not applicable
 - Restriction Materials : not applicable
 - Permission Materials : not applicable
 - Prohibition Materials : not applicable
 - Related Law For Chemicals Registration, evaluation : Existing Chemicals (Butyl Acetate, Water)
- C. Hazardous Safety Control Acts : 4 Class Petroleum (insoluble liquid), 1,000 liter
- D. Waste Control Acts : **Classify according to the characteristics of the waste and dispose of it in accordance with applicable regulations of the Waste Management Act.**

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E. Other regulation and foreign regulation

- Persistent Organic Pollutants Control Acts : Not application
- EU Regulations
 - Classification results : R10, R66, R67
 - Hazard phases : R10, R66, R67
 - Precaution phases : S2, S25
- US Regulations
 - OSHA Regulations (29CFR1910.119) : Not application
 - CERCLA 103 Regulations (40CFR302.4) : 2267.995(kg), 5000(lb)
 - EPCRA 302 Regulations (40CFR355.30) : Not application
 - EPCRA 304 Regulations (40CFR355.40) : Not application
 - EPCRA 313 Regulations (40CFR372.65) : Not application
- Rotterdam Convention : Not application
- Stockholm Convention : Not application
- Montreal Protocol : Not application

16. Other Information

- A. References : This MSDS is prepared in accordance with Article 41 of the Industrial Safety and Health Act and Article 2016-19 of the Ministry of Employment and Labor (standards on the provision of material safety data).
MSDS (KOSHA)
TOXNET, U.S. National Library of Medicine
International Chemical Safety Cards(ICSC)
ECS-ESIS(European chemical Substances Information System)
IUCLID Chemical Data Sheet, EC-ECB
NCIS, National Institute of Environmental Research
Korea Information System for Chemical Safety Management
- B. Original preparation date : 2010, MAY. 07.
- C. Revision number and revision date : 5 / 2017, Jan. 23.
6 / 2017, Mar. 14. - Application Of NO.2016-19 Revised Regulation(2016, April, 6. MOEL Notice)
7 / 2017. Aug. 2 - Revised MSDS in Korea Safety and Health Corporation
8 / 2019. Mar. 14 - Review the revision of the MSDS provided by the Occupational Safety and Health Agency for different item identifications.
9 / 2020. Mar. 11 - Review the revision of the MSDS provided by the Occupational Safety and Health Agency for different item identifications.
10 / 2020. April. 01 - Ulsan factory addres added by customer request

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11 / 2020. July. 07 - Regulation amended by the Waste Management Act by customer request

D. Other No data

: This information is based on current available DB to protect workers' health, environment and safety.