

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

Ethyl Acetate

1. IDENTIFICATION

A. Product name

- Ethyl Acetate

B. Recommended use and restriction on use

- General use: Feed materials, Intermediates, Solvent and extraction agents, Washing and cleaning products, Viscosity adjusters, Pharmaceuticals
- Restriction on use: Do not use any other purpose

C. Manufacturer / Supplier / Distributor information

o Manufacturer information

- Company name: Korea Alcohol Industrial Co., LTD.
- Address: (Headquater) 14, Tapsil-ro 35beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do
(Ulsan office) 66, Sanggae-ro, Nam-gu, Ulsan
- Emergency telephone number: (Headquater)031-881-8100, (Ulsan office)052-259-4761~2

o Supplier/Distributor information

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2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category2
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category2
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)
- Acute toxicity(oral) : Category5

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H225 Highly flammable liquid and vapour
- H303 May be harmful if swallowed
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation.

○ **Precautionary statements**

1) Prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P321 Specific treatment (if in eyes, wash with plenty of running water; if in contact with skin, wash with plenty of running water; if inhaled, move to fresh air; if ingested, seek medical advice on whether to induce vomiting).
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section SDS 5).

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Acetic acid ethyl ester	Acetic ether ; Acetidin ; Acetoxyethane ; Ethyl acetic ester ; Ethyl ester ; Ethyl ethanoate ; Vinegar naphtha ; Acetoxy ethane ;	141-78-6	99.8≤
Formic acid 2-methylpropyl ester	Formicacid	542-55-2	<0.1
Butyl ethyl ether	Ethyl n-butyl ether	628-81-9	<0.1
Water	Aqua; Dihydrogen oxide	7732-18-5	<0.1
Ethanol	Alcohol anhydrous ; Alcohol dehydrated ; Ethyl alcohol ; Ethanol solution ; Alcohol ; Fermentation alcohol ; Algrain ; Ethyl hydrate ; Ethyl hydroxide	64-17-5	<0.1
n-Butyl alcohol	1-Butanol ; Propylcarbinol ; Propylmethanol ; N-Butanol ; Butyric alcohol ; Butyl hydroxide ; 1-Hydroxybutane ; Methylolpropane ; Butyl alcohol ; Butan-1-OL ;	71-36-3	<0.1
Methyl acetate	Acetic acid methyl ester ; Methyl ethanoate	79-20-9	<0.1
Ethyl-2-methylpropionate	Ethyl isobutyrate	97-62-1	<0.1
Ethyl propanoate	Propionic acid, ethyl ester	105-37-3	<0.1
n-Propyl acetate	Propyl acetate ; n-Propyl acetate ; 1-Propyl Acetate ; 1-Acetoxypropane ; 1-Acetoxypropane ; Acetic acid, propyl este ; ACETATE, PROPYL ; Acetic acid n-propyl ester ; Propyl ethanoate	109-60-4	<0.1
Formic acid ethyl ester	Ethyl formate	109-94-4	<0.1
Isobutyl acetate	Acetic acid, 2-methylpropyl ester ; Butyl-iso acetate ; Acetate, 2-methylpropyl ; beta-Methylpropyl ethanoate ; 2-Methyl-1-propyl acetate ; 2-Methylpropyl acetate ; 2-Methylpropyl ester acetic acid ; Acetic acid, isobutyl ester ;	110-19-0	<0.1
Butanal	Butyraldehyde ; Butanal ; n-Butyraldehyde ; Butyl aldehyde ; Butal ; Butaldehyde ; Butanaldehyde ; Butyral ; Butyric aldehyde ; Butyrylaldehyde ;	123-72-8	<0.1
Butyl acetate	Acetic acid, butyl ester ; 1-Butyl acetate ; Butyl acetate ; Acetic acid N-butyl ester ; Butyl ethanoate ; 1-Acetoxybutane	123-86-4	<0.1

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.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- Take specific treatment if needed.
- When exposed to large amounts of steam and mist, move to fresh air.
- Get medical attention immediately.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

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

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Avoid use of water jet for extinguishing
- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

B. Specific hazards arising from the chemical

- Causes serious eye irritation
- Causes skin irritation
- Highly flammable liquid and vapour
- May cause respiratory irritation.

C. Special protective actions for firefighters

- Avoid inhalation of materials or combustion by-products.
- Cool containers with water until well after fire is out.
- Do not approach the tank surrounded by fire until it is extinguished.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep unauthorized personnel out.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.

B. Environmental precautions

- If large amounts have been spilled, inform the relevant authorities.
- Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

- Appropriate container for disposal of spilled material collected.
- Dike for later disposal.
- Disposal of waste shall be in compliance with the Wastes Control Act
- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.

B. Conditions for safe storage, including any incompatibilities

- Avoid direct sunlight.
- Check regularly for leaks.
- Do not apply any physical shock to container.
- Do not apply direct heat.
- Do not use damaged containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

o ACGIH TLV

- [Acetic acid ethyl ester] : TWA 100 ppm STEL 200 ppm URT dam; body weight; CNS impair
- [Ethanol] : STEL 1000 ppm URT irr
- [n-Butyl alcohol] : TWA 20 ppm Eye & URT irr
- [Methyl acetate] : TWA 200 ppm STEL 250 ppm Headache; dizziness; nausea; eye dam (degeneration of ganglion cells in the retina)
- [n-Propyl acetate] : TWA 100 ppm STEL 150 ppm URT & eye irr; CNS impair
- [Formic acid ethyl ester] : STEL 100 ppm URT irr
- [Isobutyl acetate] : TWA 50 ppm STEL 150 ppm Eye & URT irr
- [Butyl acetate] : TWA 50 ppm STEL 150 ppm Eye & URT irr

o OSHA PEL

- [Acetic acid ethyl ester] : 400 ppm, 1400 mg/m³
- [Ethanol] : 1000 ppm, 1900 mg/m³
- [n-Butyl alcohol] : 100 ppm, 300 mg/m³
- [Methyl acetate] : 200 ppm, 610 mg/m³
- [n-Propyl acetate] : 200 ppm, 840 mg/m³
- [Formic acid ethyl ester] : 100 ppm, 300 mg/m³
- [Isobutyl acetate] : 150 ppm, 700 mg/m³
- [Butyl acetate] : 150 ppm, 710 mg/m³

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. Individual protection measures, such as personal protective equipment

o Respiratory protection

- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Consider warning properties before use.
- 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.
- Respiratory protection is ranked in order from minimum to maximum.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

o Eye protection

- Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

o Hand protection

- Wear appropriate chemical resistant glove.

o Skin protection

- Wear appropriate chemical resistant protective clothing.

o Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	No color(transparent)
B. Odor	Sweet smell
C. Odor threshold	3.9ppm
D. pH	Not available
E. Melting point/Freezing point	-84°C
F. Initial Boiling Point/Boiling Ranges	77°C
G. Flash point	-4°C(C.C)
H. Evaporation rate	6.2(Butyl Acetate = 1)
I. Flammability(solid, gas)	Not applilcable
J. Upper/Lower Flammability or explosive limits	2.2%/11.5% (Lower/Upper)
K. Vapour pressure	93.2 mmHg(at 25°C)
L. Solubility	6.4g/100ml(at 25°C)
M. Vapour density	3.0 (Air=1)
N. Specific gravity(Relative density)	0.9(water =1)
O. Partition coefficient of n-octanol/water	0.73(Log Kow)
P. Autoignition temperature	427°C
Q. Decomposition temperature	Not available
R. Viscosity	0.44 cP(at 25°C)
S. Molecular weight	88.11 g/mol

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid: Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- **Respiratory tracts**
 - May cause respiratory irritation.
- **Oral**
 - Not available
- **Eye-Skin**
 - Causes skin irritation

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ Acute toxicity

* Oral

- Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
- [Acetic acid ethyl ester] : LD50 4934 mg/kg Rabbit (OECD TG 401) (ECHA)
- [Formic acid 2-methylpropyl ester] : LD50 3064 mg/kg rabbit(NLM, Registry of Toxic Effects of Chemical Substances)
- [Butyl ethyl ether] : LD50 1870 mg/kg Rat (NLM)
- [Water] : LD50 > 90000 mg/kg Rat (LD50 > 90 ml/kg) (HSDB)
- [Ethanol] : LD50 10470 mg/kg Rat (OECD TG 401, ECHA)
- [n-Butyl alcohol] : LD50 1200 mg/kg Hamster, EU Harmonised Cat 4. (ECHA)
- [Methyl acetate] : LD50 6482 mg/kg Rat (OECD TG 401, ECHA)
- [Ethyl-2-methylpropionate] : LD50 > 5000 mg/kg bw Rat No death (Read across CAS No. 659-70-1) (OECD TG 423, GLP) (ECHA)
- [Ethyl propanoate] : LD50 > 5000 mg/kg Rat (Read across CAS No. 659-70-1) (OECD TG 423, GLP) (ECHA)
- [n-Propyl acetate] : LD50 8700 mg/kg Rat (ECHA)
- [Formic acid ethyl ester] : LD50 = 1850 mg/kg Rat
- [Isobutyl acetate] : LD50 13413 mg/kg Rat (OECD Guideline 401) (ECHA)
- [Butanal] : LD50 2490 mg/kg Rat
- [Butyl acetate] : LD50 10760 mg/kg(12.2 mL/kg) Rat(female) (OECD TG 423) (ECHA)

*** Dermal**

- Product (ATEmix) : >5000mg/kg
- [Acetic acid ethyl ester] : LD50 > 20000 mg/kg Rabbit (ECHA, NCIS)
- [n-Butyl alcohol] : LD50 ca. 3430 mg/kg Rabbit (OECD TG 402, GLP) (ECHA)
- [Methyl acetate] : LD50 > 2000 mg/kg Rat (OECD TG 402, GLP) (ECHA)
- [Ethyl propanoate] : LD50 > 2000 mg/kg Rat (OECD TG 402, GLP) (ECHA)
- [n-Propyl acetate] : LD50 >17800 mg/kg Rabbit (ECHA)
- [Formic acid ethyl ester] : LD50 = 5000 mg/kg Rabbit
- [Isobutyl acetate] : LD50 > 17400 mg/kg Rabbit (OECD Guideline 402) (ECHA)
- [Butanal] : LD50 1046 mg/kg Rabbit
- [Butyl acetate] : LD50 > 14112 mg/kg (> 16 mL/kg) Rabbit (OECD TG 402) (ECHA)

*** Inhalation**

- Product (ATEmix) : 20.0mg/L < ATEmix <= 50.0mg/L, Vapour, 4hr
- [Acetic acid ethyl ester] : Vapour LC0 > 27.6 mg/L 4hr (> 22.5 mg/L(6000 ppm) 6hr) Rat No death (58 FR 40262, GLP) (ECHA)
- [Butyl ethyl ether] : Gas LC50 >1000 ppm 4 hr Rat (NLM)
- [Ethanol] : Vapor LC50 124.7 mg/L 4 hr Rat (OECD TG 403, ECHA)
- [Methyl acetate] : Vapour LC50 > 49.2 mg/L 4hr Rabbit (ECHA)
- [n-Propyl acetate] : Vapour LC50 ca. 32 mg/L air 4 hr Rat (ECHA)
- [Formic acid ethyl ester] : LC50 = 12.1 ~ 24.2 mg/L Rat
- [Isobutyl acetate] : Vapour LC50 30 mg/L 4 hr Rat (OECD Guideline 403, GLP) (ECHA)
- [Butanal] : LC50 49 mg/l 4 hr Rat
- [Butyl acetate] : Vapour LC50 > 21 mg/L 4hr Rat No death (OECD TG 403, GLP) (ECHA)

○ **Skin corrosion/irritation**

- Causes skin irritation

○ **Serious eye damage/irritation**

- Causes serious eye irritation

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- Not available

○ **Carcinogenicity**

*** IARC**

- [Ethanol] : Group 1

*** OSHA**

- Not available

*** ACGIH**

- [Ethanol] : A3
- [Formic acid ethyl ester] : A4

*** NTP**

- Not available

*** EU CLP**

- Not available

*** Other information**

- Not applicable

○ **Germ cell mutagenicity**

- Not available

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- May cause respiratory irritation.

○ **STOT-repeated exposure**

- Not available
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ Fish

- [Acetic acid ethyl ester] : LC50 230 mg/L 96 hr *Pimephales promelas* (US EPA method E03-05), NOEC < 9.65 mg/L 32 d *Pimephales promelas* (OECD TG 210) (ECHA)
- [Formic acid 2-methylpropyl ester] : LC50 38.485 mg/l 96 hr (Estimate)
- [Butyl ethyl ether] : LC50 70.984 mg/l 96 hr (Estimate)
- [Ethanol] : LC50 15.3 g/L 96 hr *Pimephales promelas* (US EPA method E03-05), NOEC 250 mg/L 120 hr *Danio rerio* (OECD TG 212) (ECHA)
- [n-Butyl alcohol] : LC50 1376 mg/l 96hr *Pimephales promelas* (OECD TG 203, GLP) (ECHA)
- [Methyl acetate] : LC50 250 ~ 350 mg/L 96hr *Danio rerio* (OECD TG 203, GLP) (ECHA)
- [Ethyl propanoate] : LC50 6.74 mg/L 96hr *Danio rerio* (Read across CAS No. 123-66-0) (OECD TG 203, GLP) (ECHA)
- [n-Propyl acetate] : LC50 60 mg/l 96 hr *Pimephales promelas* (ECHA)
- [Formic acid ethyl ester] : LC50 230 mg/l 96 hr (NITE) LC50 >100 mg/l 96 hr Other(*Danio rerio*, Static, OECD Guideline 203) (ECHA)
- [Isobutyl acetate] : LC50 16.6 mg/L 96 hr *Oryzias latipes* (OECD Guideline 203, GLP) (ECHA)
- [Butanal] : LC50 13.4 mg/l 96 hr (NITE) LC50 16 mg/l 96 hr
- [Butyl acetate] : LC50 18 mg/L 96 hr *Pimephales promelas* (OECD TG 203) (ECHA)

○ Crustaceans

- [Acetic acid ethyl ester] : EC50 262 mg/L 48 hr *Daphnia pulex* (NITE), NOEC 2.4 mg/L 21 d *Daphnia magna* (OECD TG 211) (ECHA)
- [Formic acid 2-methylpropyl ester] : LC50 87.410 mg/l 48 hr (Estimate)
- [Butyl ethyl ether] : LC50 76.218 mg/l 48 hr (Estimate)
- [Ethanol] : LC50 5012 mg/L 48 hr *Ceriodaphnia dubia* (ASTM E729-80), NOEC 2 mg/L 10 d *Ceriodaphnia dubia* (ECHA)
- [n-Butyl alcohol] : EC50 1328 mg/l 48hr *Daphnia magna* (OECD TG 202, GLP), NOEC 4.1 mg/l 21d *Daphnia magna* (OECD TG 211, GLP) (ECHA)
- [Methyl acetate] : EC50 1026.7 mg/L 48hr *Daphnia magna* (OECD TG 202, GLP), NOEC 2.4 mg/L 21d *Daphnia magna* (Read-across CAS No. 141-78-6) (OECD TG 211) (ECHA)
- [Ethyl-2-methylpropionate] : EC50 > 100 mg/L 48 hr *Daphnia magna* (OECD TG 202, GLP) (ECHA)
- [Ethyl propanoate] : EC50 36 mg/L 48hr *Daphnia magna* (Read across CAS No. 123-66-0) (EU Method C.2, GLP), NOEC 1.3 mg/L 21 day *Daphnia magna* (OECD TG 211) (ECHA)
- [n-Propyl acetate] : EC50 91.5 mg/l 48 hr *Daphnia magna*(OECD TG 202, GLP) (ECHA)
- [Isobutyl acetate] : EC50 24.6 mg/L 48 hr *Daphnia magna* (OECD Guideline 202, GLP), NOEC 23.2 mg/L 21 d (OECD Guideline 211, GLP) (ECHA)
- [Butyl acetate] : EC50 44 mg/L 48 hr *Daphnia sp.* (OECD TG 202), NOEC 23.2 mg/L 21 d *Daphnia magna* (Read-across CAS No. 110-19-0) (OECD TG 211, GLP) (ECHA)

○ Algae

- [Acetic acid ethyl ester] : NOEC > 100 mg/L 72 hr *Desmodesmus subspicatus* (OECD TG 201, GLP) (ECHA)
- [Formic acid 2-methylpropyl ester] : EC50 40.488 mg/l 96 hr (Estimate)
- [Butyl ethyl ether] : EC50 47.732 mg/l 96 hr (Estimate)
- [Ethanol] : EC50 275 mg/L 72 hr *Chlorella vulgaris* (OECD TG 201) (ECHA)
- [n-Butyl alcohol] : EC50 225 mg/L 96hr *Raphidocelis subcapitata* (OECD TG 201, GLP) (ECHA)
- [Methyl acetate] : EC50 > 120 mg/L, NOEC 120 mg/L 72hr *Desmodesmus subspicatus* (OECD TG 201, GLP) (ECHA)
- [Ethyl-2-methylpropionate] : EC50 238 mg/L, NOEC 50 mg/L 72 hr *Raphidocelis subcapitata* (OECD TG 201, GLP) (ECHA)
- [Ethyl propanoate] : EC50 > 130 mg/L , NOEC 130 mg/L 72 hr *Raphidocelis subcapitata* (OECD TG 201, GLP) (ECHA)
- [n-Propyl acetate] : EC50 672 mg/l 72 hr, NOEC 83.2 mg/L 72 hr *Pseudokirchnerella subcapitata* (OECD TG 201, GLP) (ECHA)
- [Isobutyl acetate] : EC50 397 mg/L, NOEC 196 mg/L 72 hr *Raphidocelis subcapitata* (OECD Guideline 201, GLP) (ECHA)

- [Butyl acetate] : EC50 335 mg/L, NOEC 196 mg/L 72 hr *Raphidocelis subcapitata* (Read-across CAS No. 110-19-0) (OECD TG 201, GLP) (ECHA)

B. Persistence and degradability

o Persistence

- [Acetic acid ethyl ester] : log Pow 0.68 (25 °C, pH 7) (EPA OPPTS 830.7560) (ECHA)
- [Formic acid 2-methylpropyl ester] : log Kow 1.23 (Estimate)
- [Butyl ethyl ether] : log Kow 2.03 (NLM)
- [Water] : log Kow -1.38 (HSDB)
- [Ethanol] : log Pow -0.35 (24 °C, pH 7.4) (OECD TG 107, ECHA)
- [n-Butyl alcohol] : log Pow 1 (25 °C, pH 7) (OECD TG 117, GLP) (ECHA)
- [Methyl acetate] : log Kow 0.18 (ECHA)
- [Ethyl-2-methylpropionate] : log Pow 1.8 (22.9 °C, pH 7) (OECD TG 117, GLP) (ECHA)
- [Ethyl propanoate] : Log Pow 1.31 (22.1 °C, pH 7) (OECD TG 117, GLP) (ECHA)
- [n-Propyl acetate] : log Kow 1.4 (25°C, pH 7) (OECD TG 117, GLP) (ECHA)
- [Formic acid ethyl ester] : log Kow 0.23 log Kow 1.504 (ECHA)
- [Isobutyl acetate] : log Kow 2.3 (25 °C, pH 7) (ECHA)
- [Butanal] : log Kow 0.88 (NITE)
- [Butyl acetate] : log Pow 2.3 (25°C, pH ca. 7) (OECD TG 117, GLP) (ECHA)

- **Degradability**
- Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - [Acetic acid ethyl ester] : BCF 30 (ECHA)
 - [Formic acid 2-methylpropyl ester] : BCF 2.99 (Estimate)
 - [Butyl ethyl ether] : BCF 7.296 (Estimate)
 - [Formic acid ethyl ester] : BCF 0.88 (ECHA)
 - [Isobutyl acetate] : BCF 15.3 (ECHA)
- **Biodegradation**
 - [Acetic acid ethyl ester] : Readily biodegradable, ca. 69 % degradation (O2 consumption) 20 d (ECHA)
 - [Formic acid 2-methylpropyl ester] : (Cut-off value= 3.9293 : rapidly biodegradable(BIOWIN 4)) (Estimate)
 - [Ethanol] : Readily biodegradable, ca. 84 % degradation (O2 consumption) 20d (ECHA)
 - [n-Butyl alcohol] : Readily biodegradable, 92 % degradation (O2 consumption) 20d (ECHA)
 - [Methyl acetate] : Readily biodegradable, 75 % degradation (O2 consumption) 19 d (OECD TG 301 D, GLP) (ECHA)
 - [Ethyl-2-methylpropionate] : Readily biodegradable 74 % degradation (O2 consumption) 28 d (OECD TG 301F, GLP) (ECHA)
 - [Ethyl propanoate] : Readily biodegradable, 68% degradation 28 d (O2 consumption) (OECD TG 301D, GLP) (ECHA)
 - [n-Propyl acetate] : Readily biodegradable, 62 % 5 d (O2 consumption) (OECD TG 301 D) (ECHA)
 - [Formic acid ethyl ester] : 30 (%) 1 day (Aerobic, Other) (ECHA)
 - [Isobutyl acetate] : Readily biodegradable, 80 % degradation (O2 consumption) 20 day (OECD Guideline 301 D) (ECHA)
 - [Butanal] : BOD: 100% (NITE) 22.8 %, 1 day (Aerobic, activated sludge from wastetreatment plants)
 - [Butyl acetate] : Readily biodegradable, 83 % degradation (O2 consumption) 28d (OECD TG 301 D) (ECHA)

D. Mobility in soil

- [Ethanol] : log Koc ca. 0.2 (ECHA)
- [Methyl acetate] : log Koc 0.18 (OECD TG 121, GLP) (ECHA)
- [n-Propyl acetate] : Koc 10.17 (calculation) (ECHA)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them
- Make sure to incinerate completely.

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 1173

B. Proper shipping name

- ETHYL ACETATE

C. Hazard Class

- 3

D. IMDG CODE/IATA DGR Packing group

- II

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE :F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE :S-D (Flammable liquids)

15. REGULATORY INFORMATION**A. National and/or international regulatory information****o POPs Management Law**

- [Acetic acid ethyl ester] : Not applicable
- [Formic acid 2-methylpropyl ester] : Not applicable
- [Butyl ethyl ether] : Not applicable
- [Water] : Not applicable
- [Ethanol] : Not applicable
- [n-Butyl alcohol] : Not applicable
- [Methyl acetate] : Not applicable
- [Ethyl-2-methylpropionate] : Not applicable
- [Ethyl propanoate] : Not applicable
- [n-Propyl acetate] : Not applicable
- [Formic acid ethyl ester] : Not applicable
- [Isobutyl acetate] : Not applicable
- [Butanal] : Not applicable
- [Butyl acetate] : Not applicable

o Information of EU Classification*** Classification**

- [Acetic acid ethyl ester] : H225,H319,H336
- [Formic acid 2-methylpropyl ester] : H225,H319,H335
- [Ethanol] : H225
- [n-Butyl alcohol] : H226,H302,H315,H318,H335,H336
- [Methyl acetate] : H225,H319,H336
- [Ethyl propanoate] : H225
- [n-Propyl acetate] : H225,H319,H336
- [Formic acid ethyl ester] : H225,H302,H319,H332,H335
- [Isobutyl acetate] : H225
- [Butanal] : H225
- [Butyl acetate] : H226,H336

- **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - [Acetic acid ethyl ester] : 2267.995 kg 5000 lb
 - [n-Butyl alcohol] : 2267.995 kg 5000 lb
 - [Isobutyl acetate] : 2267.995 kg 5000 lb
 - [Butyl acetate] : 2267.995 kg 5000 lb
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - [n-Butyl alcohol] : Applicable
 - [Butanal] : Applicable
- **Rotterdam Convention listed ingredients**
 - Not applicable
- **Stockholm Convention listed ingredients**
 - Not applicable
- **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2021-01-03

C. Revision number and Last date revised

- 1 times, 2026-07-16

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).
- The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose
- This SDS is written for assisting buyers, handlers or the third party to manage materials. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein. The recipient of our products is responsible for observing any laws and guidelines applicable
- The content contained in this SDS may vary by country and region, and may not be consistent with the content of the actual relevant regulations. Buyer and handlers are responsible for identifying and complying with the relevant government and local regulations