RESONAC

GPS/JIPS Safety Summary

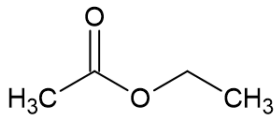
1. SUBSTANCE NAME

Ethyl acetate （CAS No. 141-78-6）

2. GENERAL STATEMENT

Ethyl acetate manufactured by our company is a colorless, clear liquid synthesized from acetic acid and ethylene using a catalyst. It has an aromatic and pungent odor. Evaporation gases is heavier than air and may move along the ground or floor.
Since it is flammable, use of fire, shock, or sparks around ethyl acetate is strictly prohibited during handling. The container should be tightly sealed and stored in a well-ventilated cold place.
Also, ethyl acetate may cause pain and itching when it comes into contact with the eyes. If you may be exposed to ethyl acetate during operation, it is necessary to minimize health effects from inhalation or eye contact by using appropriate exhaust equipment and protective equipment, such as goggles.

3. CHEMICAL IDENTITY

Item	Description
Chemical or generic name	Ethyl acetate
Trade name	Ethyl acetate
Synonyms	Acetic acid ethyl ester
CAS No.	141-78-6
Other No.	Japan: Chemical Substances Control Law (2)-726 Japan: Industrial Safety and Health Act, existing chemical substance
Chemical Formula	$CH_3COOC_2H_5$
Structual Formnula	
Source/References	Section 3 of the SDS issued by Resonac Corporation

4. USES AND APPLICATIONS

Main uses	Ethyl acetate is used for solvents such as printing inks, thinners, and adhesives.

5. PHYSICAL/CHEMICAL PROPERTIES

Ethyl acetate is a colorless liquid at ordinary temperature and pressure. It has an aromatic odor, and at a high concentration, it has a pungent odor. It is flammable and may generate toxic gases due to combustion.

Appearance	Liquid
Colour	Colourless
Odour	Aromatic and pungent at high concentration
Melting point/Boiling point	-84 ℃ / 77.1 ℃
Flash point	-4 ℃ (Closed cup)

Flammability (solid, gas)	Highly flammable liquid and vapour.
Explosive limits (vol %)	2.2 – 11.5 vol %
Auto-ignition temperature	427 ℃
Vapour pressure	10 kPa (at 20 ℃)
Relative vapour density at 20 ℃	3.0 (Air=1)
Relative density	0.901 (20/4℃)
Solubility in water	8.1wt% (at 20 ℃)
Partition coefficient n-octanol/water (Log Pow)	0.73
Viscosity	0.449 mPa·s (20℃)
Other data	Incomplete combustion can release dangerous carbon monoxide, carbon dioxide and other harmful toxic gases.
Sources/references	Section 9 and 10 of the SDS issued by Resonac Corporation

6. HEALTH EFFECTS

Effect assessment	Results （GHS Hazard Classification）
Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation:gas)	Not applicable
Acute toxicity (inhalation:vapour)	Category 4 Harmful if inhaled.
Acute toxicity (inhalation:dust,mist)	Classification not possible
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation,	Category 2B Causes eye irritation.
Respiratory sensitisation	Classification not possible
Skin sensitisation	Not classified
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Classification not possible
Reproductive toxicity	Classification not possible
Specific target organ toxicity – Single exposure,	Category 3 (Narcosis) May cause drowsiness or dizziness.
Specific target organ toxicity – Single exposure,	Category 3 (Respiratory tract irritation) May cause respiratory irritation
Specific target organ toxicity (repeated exposure)	Classification not possible
Aspiration hazard	Classification not possible
Referencese	Section 2 and 11 of SDS issued by Resonac Corporation

・ GHS (Globally Harmonized System of Classification and Labelling of Chemicals): A system that classifies chemicals according to the type and degree of hazards, labels the information, and provides safety data sheets according to globally harmonized rules.
・ Not applicable: Since the priority of physical state, chemical structure, chemical property, and hazard items used in the GHS classification procedures does not fall under the category, it is not subject to the classification for the category.
・ Not classified: Sufficient information has been obtained to implement the GHS classification, and as a result of the classification, it does not fall under any of the hazard categories specified in the GHS.
・ Classification not possible : There is not enough information for GHS classification, and classification is not possible.

7. ENVIRONMENTAL EFFECTS

Effect assessment	Results （GHS Hazard Classification）
Hazardous to the aquatic environment, short-	Not classified

term (acute)	
Hazardous to the aquatic environment, long-term (chronic)	Not classified
Hazardous to the ozone layer	Classification not possible
Sources/references	Sections 2 and 12 of the SDS issued by Resonac Corporation

Environmental fate/dynamics	
Mobility in soil	Koc=5.6
Persistence/degradability	Biodegradation test (2 weeks): Readily biodegradable
Bioaccumulation potential	BCF=3.2 Bioaccumulation potential is presumed to be low.
Conclusion about PBT/vPvB	The criteria for persistent bioaccumulative and toxic (PBT; remaining persistently in the environment and possessing high bioaccumulation potential and toxicity) and very persistent and very bioaccumulative (vPvB; remaining very persistently in the environment and possessing very high bioaccumulation potential) chemicals are believed to inapplicable.
Sources/references	Sections 12 of the SDS issued by Resonac Corporation

8. EXPOSURE

Detals	Exposure potentials through main uses
Occupational exposures	Although our company products are manufactured in closed, well-controlled, continuous processes, there is a potential for dermal or inhalation exposure in blending/mixing operation in batches with significant contact opportunities in the formulation or manufacture of articles (PROC5). In operations for industrial sprays, such as paints, organic cleaners, and bonding agent, aerosol generation is expected and could lead to dermal and inhalation exposure (PROC7). There is a potential for dermal or inhalation exposure in operators during the transfer of substances or preparations from a ship or large-capacity container in the dedicated facility, in association with dust/vapor/aerosol generation, spillage, cleaning of the equipment, etc. (PROC 8b). It is used in roller or brushing operation for coating, surface cleaning, etc. and may cause dermal or inhalation exposure due to the generation of steam, droplets, and splashes, wiping operation, application surface operation, etc. (PROC10).
Consumer exposures	This product is rarely used directly by general consumers, but it is sometimes used as a mixture product, such as a bonding agent and a sealing agent, etc. In that case, there is a potential for dermal and inhalation exposure in consumers (PC1). They may also be used as products, such as paint, solvent, or remover, which may cause dermal or inhalation exposure (PC9a).
Environmental exposures	Since the products are typically manufactured and used in closed processes, their emission to the environment is limited. The material is a liquid with a high vapor pressure, and it may be released from its compounding process mainly into the atmospheric and water environment (ERC2).

Precautions	If there is a possibility of exposure in other uses, take appropriate measures with reference to recommended risk management measures.

9. RISK MANAGEMENT RECOMMENDATIONS

Recommended risk management measures can minimize risks to workers, consumers, and the environment from Section 8 exposure scenarios.

Detals	Risk management recommendations
Worker	Technical measures Handle with protective equipment. Use explosion-proof electrical, ventilation, and lighting equipment. Take action to prevent static discharge, which is an ignition source. Install facilities for eye and body washing near the handling place.
	Local exhaust and general ventilation Handle the product in a generally well-ventilated room. Use a local exhaust ventilation for operations in which the product may come into contact with the skin, such as the hands.
	Permissible concentration For this product, the control concentration and permissible concentration of 200 ppm (720 mg/m^3) by the Japan Society for Occupational Health has been published, and the time-weighted average (TLV-TWA) of 400 ppm has been published by the American Conference of Governmental Industrial Hygienists (ACGIH). Manage and control the concentration below these values.
	Protective equipment During operation, wear respiratory protection (a certified gas mask for organic gas [with a collection rate of 95% or higher]) and chemically resistant rubber gloves (APF20 [with a protection rate of 95%]) to avoid contact with the skin, and use safety eye protection to avoid eye irritation. In addition, wear chemical goggles or face protection and chemically resistant protective clothing, apron, and boots, depending on the usage condition.
	Precautions The operation manager should educate operators about the selection of appropriate protective equipment, proper usage method, and control method of the work site.
Consumer	Use the product according to the product's instruction manual.
Enviaronment	Install appropriate wastewater treatment facilities and exhaust gas treatment facilities. In addition, take measures to prevent leakage, and pay attention to periodic confirmation of discharge volume, daily control, and handling.
Special notes (emergency measures in case of leakage, etc.)	Precautions to human body, protective equipment, and emergency measures: Wear appropriate protective equipment during operation to prevent inhalation, eye or face contact, and skin adhesion. In case of a massive leakage, immediately evacuate the surrounding personnel and ventilate the area. Prohibit unauthorized persons from entering the area where leakage occurred by using a rope to secure the area. Immediately remove ignition sources from the vicinity, and prepare suitable extinguishing media (carbon dioxide [CO2], foam, water spray, and powder).

	Environmental precautions Take care not to discharge the leaked product into rivers, etc., and affect the environment.
Precautions	For normal handling, emergency response, disposal, and transportation control measures, refer to sections 4, 5, 6, 7, 8, 13, and 14 of the SDS issued by Resonac Corporation.

10. STATE AGENCY REVIEW

Hazard assessment	Situations of review
International Chemical Safety Cards	International Chemical Safety Card ICSC: 0367 https://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=0367&p_version=2
OECD HPV	High production volume chemical testing programme https://hpvchemicals.oecd.org/UI/Search.aspx
NITE-CHRIP（NITE Chemical Risk Information Platform）	https://www.nite.go.jp/en/chem/chrip/chrip_search/srhInput
GHS Classification Results by the Japanese Government	https://www.nite.go.jp/chem/english/ghs/19-mhlw-2086e.html

11. REGULATORY INFORMATION／GHS CLASSIFICATION AND LABELLING INFORMATION

Regulatory information only in Japan

Applicable laws	Regulatory situations
Industrial Safety and Health Act	Second-class organic solvents, etc., (Attached Table 6-2 of the Enforcement Order and Article 1, Paragraph 1, Item 4 of the Ordinance on Prevention of Organic Solvent Poisoning) Working environment assessment standard (Article 65-2, Paragraph 1 of the Act) Dangerous or Harmful Substances Subject to Be Indicated their Names (Article 57 Paragraph (1) of the Act, Article 18 item(ⅰ) and item(ⅱ) appended Table No. 9 of the Enforcement Order) Dangerous Substances：flammable substances (appended table1 item 4 of Enforcement Order) Dangerous Articles and Harmful Substances Whose Names, etc. Should Be Notified (Article 57-2 of the Act, Article 18-2 item(ⅰ) and item(ⅱ) appended Table No. 9 of the Enforcement Order) Ethyl acetate (Cabinet Order Number : 177) Substances on Special medical examination, Current handling workers (Article 66, Paragraph 2 of the Act, Article 22, Paragraph 1 of the Enforcement Order)
Poisonous and Deleterious Substances Control Act	Deleterious Substances (Cabinet Order for the Designation of the Poisonous and Deleterious Substances, Article 2)
Water Pollution Prevention Act	Designated Substances (Article 2, Paragraph 4 of the Act, Article 3-3 of the Enforcement Order)
Fire Service Act	Category IV inflammable liquids, Class Ⅰ petroleum, non-water-soluble liquids (Article 2, Paragraph 7 of the Act, Hazardous Substances, Annexed Table 1, Class 4)

Offensive Odor Control Act	Specified offensive odor substance (Article 1 of the Enforcement Order)
Air Pollution Control Act	Volatile organic compound (Article 2 paragraph 4 of the Act) （Notice from Ministry of the Environment to prefectures）
Act on Prevention of Marine Pollution and Maritime Disaster	Hazardous materials (Enforcement Ordinance Appended Table 1-4) Hazardous liquid substances (Class Z substances) (Appended Table 1 of the Enforcement Ordinance)
Foreign Exchange and Foreign Trade Act	Appended Table 2 of Cabinet Order on Export Trade Control (Approval of Exports) Import Trade Control Order Article 4, Paragraph 1, Item 2, Approved Import Item(item 2-2 Approval)
Ship Safety Act	Flammable liquids(Article 3 of Regulations for the Carriage and Storage of Dangerous Goods in Ship, Cabinet Order Concerning the Control of Hazardous Materials appended Table 1)
Civil Aeronautics Act	Flammable liquid(Article 194 of the Enforcement Ordinance, Cabinet Order Concerning the Control of Hazardous Materials appended Table 1)
Port Regulations Act	Hazardous materials(inflammable liquids) (Article 21-2 of the Act, Article 12 of Enforcement Ordinance, Notification of the Enforcement Regulations of the Port Regulations Act specifying the types of hazardous materials)
Road Act	Restrictions on vehicle traffic(Article 19-13 of the Enforcement Ordinance, Appended Table 2 of Notification No.12 of Japan Expressway Holding and Debt Repayment Agency)
Act on Control of Export, Import and Others of Specified Hazardous Wastes and Other Wastes(Basel Law)	Hazardous substances contained in waste(Article 2 paragraph 1 item 1-a of the Act, June 18, 2018 Ordinance of the Ministry of the Environment No. 12)
Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Law concerning Pollutant Release and Transfer Register / PRTR)	Not applicable
Labor Standards Act	Occupational disease chemicals (Article 75, paragraph 2 of the Act, Enforcement Ordinance Article 35, Appended Table 1-2, Item (4)-1)
UN classification	3
UN No.	UN1173 ETHYL ACETATE

Hazards	Classification results (hazard information)
Physical hazards	Flammable liquids, Category 2
Health hazards	Acute toxicity (inhalation:vapour) Category 4
	Serious eye damage/eye irritation, Category 2B

	Specific target organ toxicity (single exposure) Category 3, Narcosis
	Specific target organ toxicity (single exposure) Category 3, Respiratory tract irritation

Labelling Information	
Hazard pictograms (GHS)	
Signal word (GHS)	Danger
Hazard statements (GHS)	Highly flammable liquid and vapour. (H225) Causes eye irritation (H320) Harmful if inhaled. (H332) May cause respiratory irritation. (H335) May cause drowsiness or dizziness. (H336)

12. CONTACT INFORMATION

Company	Resonac Corporation
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13. DATE OF ISSUE / REVISION, ADDITIONAL INFORMATION

Date of issue: December 27, 2022

Revisions:

Date of revision	Revised section	Revised item	Version
December 27, 2022	6, 13	Update to the latest information	Rev.2
January 1, 2023	3, 6, 7, 10-13	Update to the latest information	Rev.3

The contents are based on the safety data sheet (SDS) created on January 1, 2023.

Special instructions:
Corporate name and head office address of the seller of a poisonous or deleterious substance
Resonac Corporation 1-13-9 Shiba Daimon, Minato-ku, Tokyo

14. DISCLAIMER

The safety summary is part of the effort for the voluntary management of chemical substance in the chemical industry (GPS/JIPS: Japan Initiative of Product Stewardship). The purpose of the safety summary is to provide information on the safe handling of the product as an overview and not to provide professional information, such as the risk evaluation process and its impact on human health and the environment. This document is not meant to serve as an alternative to risk evaluation, such as a Safety Data Sheet (SDS) or a Chemical Safety Report (CSR). This safety summary is being written as accurately as possible based on data such as laws, materials, and information available at the time of publication, but it does not include all data. It does not guarantee anything.