SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **Ethyl acetate, acetic ester**
Product Description: **-**
Chemical Formula: $C_4H_8O_2$
Recommended Use: Solvent, raw materials for the synthesis of dye and pharmaceutical intermediates.

COMPANY IDENTIFICATION

Supplier: **UNION PETROCHEMICAL PUBLIC COMPANY LIMITED**
728 Union House Building, Baromratchonnani Rd.,
Bangbumru, Bangplad, Bangkok 10700
Supplier General Contact: +662 881 8288

This (M)SDS is a generic document with no country specific information included.

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to UN GHS Criteria. Classification includes all GHS hazard classes. For hazard categories with two cut-off/concentration limits, classification was based on the higher limit.

GHS CLASSIFICATION:

Flammable liquid: Category 2.

GHS LABEL ELEMENTS:
Pictogram:

Signal Word: Dangerous

Preventive Instructions:

Preventive Measures:	Keep away from heat sources, sparks, flames, and oxidizer. No smoking.
Incident Response:	Evacuate personnel from the contaminated zone rapidly to safe area; Isolation and restrictions on access; Cut off the sources of fire and leaking in case of the leakage to the drain.
Waste Disposal:	Incineration according to the related law.

Physical and Chemical Hazards: Flammable liquid and vapor.

Health Hazards: Irritating to eyes, fauces and respiratory tract. High concentration inhalation would cause the damage of lung, liver, and kidney. Respiratory paralysis would occur when sustained inhalation; Ingestion would cause sick, spit and diarrhea. Allergization would cause gingival bleeding and dermatitis.

Environmental Hazards: Harmful to the environment. Special attention to water pollution.

Chronic Effects: Occurrence of corneal opacity, secondary anemia, increase of white blood cells after long term contact.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS No.	GHS Classification	Concentration*
Propyl Acetate	141-78-6	Class 2	≥99.5

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove to place with fresh air. Keep airways clear. Give artificial respiration if breathing is difficult or not breathing.

SKIN CONTACT

Take off the contaminated clothes and wash skin with soap and clean water.

EYE CONTACT

Flush eyes with plenty of water or normal saline. Then get immediate medical attention.

INGESTION

Rinse the mouth; Drink plenty of water; Do not induce vomiting; Get medical attention

SECTION 5 FIRE FIGHTING MEASURES

FIRE FIGHTING AND EXTINGUISHING MEDIA

Extinguishing media including foam, dry chemical, carbon dioxide, sand. Water is invalid, but it can cool the containers.

SPECIAL HAZARD

Flammable, explosion risk if contacted with spark, flame, static discharge, heat or oxidizer. Vapor is heavier than air and may travel to far places and flashback from ignition sources; The sealed container may rupture when heated; Risk of static accumulation in pipeline.

SECTION 6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Evacuate personnel from the contaminated zone rapidly to safe area; Isolation and restrictions on access; Wear self-contained breathing apparatus pressure-demand, and full protection; Gear and anti-static overalls. Electric power cut.

ENVIRONMENTAL PRECAUTIONS

Cut off the source of leakage. Prevent the leakage to the drains.

CONTROL AND CLEANUP

Small leakage: Soak up with sand, dry lime, or soda ash; Scrubbed with non-flammable emulsion of dispersant, diluted into the wastewater.

Large leakage: Construct a barrier pit. Covered with foam to reduce the steam for personnel protection. Remove the waste by explosion-proof pumps to exclusive collector for recycle or waste disposal.

SECTION 7 HANDLING AND STORAGE

HANDLING

Operation must be in a well-ventilated place; Keep adequate ventilation. Professional training and working procedure is needed for staff. The staff should wear respirator, protective glass, anti-static cloths and rubber gloves. Keep away from fire and heat resource; No Smoking. Explosion-proof ventilation system and equipment should be used. Be caution of the leakage of steam in the working place; Avoid the contact with oxidizer, acid and alkali. The flow velocity in pipeline should be controlled for the danger of static. Be caution of transfer; Transfer with fire-fighting equipment; Handling with safety watcher.

STORAGE

Stored in cool and well-ventilated areas. Keep away from fire and heat sources. Temperature in storage area should be lower than 30 ^{o}C. The containers should be sealed and separated from air, oxidizer, acid and alkali. Explosion-proof lights and ventilation equipment should be applied and the tools that can easily cause sparks should be prohibited. The containers for leakage are needed. The packing plate and sealer of containers should be made by PTFE. Filling speed <3 m/s (pipeline).

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters/Exposure limits:

Exposure limits/standards (Note: Exposure limits are not additive)

CN (MAC)	: 300mg/m^3
UK (TWA)	: 200 ppm, 8 hr.
UK (STEL)	: 400 ppm, 15 min

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

TEST METHOD

Gas chromatography and spectrophotometry

ENGINEERING CONTROLS

Strictly sealed and ventilated during the production. Safe shower and eye cleaning equipment should be applied.

INDIVIDUAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: Respirator should be worn to deal with high concentrations; Use an air-supplied or self-contained breathing apparatus, if necessary.

Eye Protection: Chemical goggles are recommended.

Body Protection: Anti-static overall.

Hand Protection: Chemical resistant protective gloves.

Other Protection: No Smoking. Personal hygiene should be attended. Take shower after work.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Transparent Liquid (20 °C)
Odour: Fruity odor

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (H_2O=1):	0.90
Flash Point:	-4°C
Boiling Point / Range:	77.1°C
Upper Explosive Limit:	11.40
Lower Explosive Limit:	2.18
Saturated Vapor Pressure:	13.33 kPa (27 °C)
Solubility:	Slightly soluble in water (79 g/L), soluble in ethanol, ketone, chloroform and ether.

OTHER INFORMATION

Melting Point: -83.8 °C

SECTION 10 STABILITY AND REACTIVITY

STABILITY: stable

HAZARDOS REACTIONS: Flammable, risk for explosion when contacted with fire, heat or oxidizer.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Acetic acid, oxides of carbon

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

LD50:5620mg/kg (oral-rat); 18000 mg/kg (skin-rabbit)
LC50: 45000 mg/m3, 2h (inhalation-rat)

Skin Irritation or Corrosion: Irritation to eyes, skin, and mucosa, cause corneal opacities. Pulmonary edema would occur when continued inhalation.

Subacute and Chronic Toxicity: 2000ppm, 7.2 g/m^3, 65 times contact (inhalation-rat, no effect) Fatty liver steatosis (13-115 mg, oral-rat, 5-9 days)

Mutagenicity: Beer yeast: 24400 ppm; Fibroblast cell of hamster: 9 g/L.

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

MOBILITY

Material -- Tendency to volatility and diffused in the air. Floating on the water and hardly to dissolve. Hardly being absorbed or precipitated by earth.

PERSISTENCE AND DEGRADABILITY

Ease of degradation in saline water and fresh water, degradable even in the anaerobic environment.

THE TOXIC ACCUMULATION IN ORGANISM:

No accumulation

OTHER ECOLOGICAL INFORMATION

Nontoxic to organisms under certain amount.
LC50: ＞200 mg / 96 h (sunfish test)

SECTION 13 DISPOSAL CONSIDERATIONS

DISPOSAL PROPERTIES

Hazardous waste

DISPOSAL METHODS

Incineration; Dispose of in accordance with local regulations.

OTHER ISSUES

No waste to the drains.

SECTION 14 TRANSPORT INFORMATION

Dangerous Good No.:	32127
UN Number:	1173
Packing Identification:	7
Packing Group:	II
Transportation Matters:	Fire-fighting and leakage-prevention should be equipped in the transportation. The grounding chain should go with the tank wagon in case of the accumulation of static. Keep away from oxidizer, acid, alkali, edible chemicals, sun exposure, rain, high temperature, fire, and heat sources during the transportation. The fire-proof equipment should go with the exhaust pipe of vehicle; all the tools may occur spark should be avoided. The vehicle should travel according to the stipulation and avoid stopping in the residential area. Do not be shipped by wooden or cement ships.

SECTION 15 REGULATORY INFORMATION

《化学危险物品安全管理条例》(Published by Congress on 26, January 2002) has made provisions on the safe production, application, storage, transportation and other aspects of chemical dangerous goods.

《化学危险物品安全管理条例实施细则》(GB13690-2009) has classified ethyl acetate as Class 2, flammable liquid.

SECTION 16 OTHER INFORMATION

The information and recommendations contained herein are, to the best of Union Petrochemical's knowledge and belief, accurate and reliable as of the date issued. You can contact Union Petrochemical to insure that this document is the most current available from Union Petrochemical. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted.