



Philippine Prosperity Chemicals, Inc.

MATERIAL SAFETY DATA SHEET

Date Reviewed :
September 21, 2009

ETHYL ALCOHOL

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: ETHYL ALCOHOL
Product Code: EA
Product Type Chemical Solvent
Company: Philippine Prosperity Chemicals, Inc.
Office Address: U1201 Picadilly Star Building
4th Ave. cor 27th St. Fort Bonifacio Global City, Taguig
Plant Address: PPCI In-land Bulk Terminal – Guiguinto, Bulacan
Contact Numbers: Tel: (632) 621-3104 to 09
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Emergency Numbers: Mobile: 0917.5845496 / 0917.5845509

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance Formal Name: Ethanol
Substance Chemical Formula: C₂H₅OH
Common name: Ethyl Alcohol
Synonyms: Ethyl Hydrate, Ethyl Hydroxide, Fermentation Alcohol
Chemical Abstract Service Registry Number (CAS RNs): 64-17-5

3. HAZARDS IDENTIFICATION

Emergency overview: Flammable liquid and vapor! May cause central nervous system depression. Causes severe eye irritation. Causes respiratory tract irritation. Causes moderate skin irritation. This substance has caused adverse reproductive and fetal effects in humans. Warning! May cause liver damage.

Human Health Hazards:

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness and unconsciousness or coma. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Vapors may also cause suffocation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, delayed reflexes and possible death due to respiratory failure.

Skin Contact: Causes moderate skin irritation. May cause cyanosis of the extremities.



<i>Eye Contact:</i>	Causes severe eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.
<i>Chronic Exposure:</i>	May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage.
<i>Aggravation of Pre-existing Conditions:</i>	Impaired kidney and liver function may be aggravated by exposure to alcohols. Preexisting eye, skin, and respiratory conditions may also be aggravated.

4. FIRST AID MEASURES

<i>Inhalation:</i>	Occupational exposure limits (8-hour reference period is 1,000 mg/L). Can be intoxicating if continuously inhaled for a long period of time. Move the person to fresh air, immediately perform artificial respiration if breathing has stopped. When breathing is difficult, administer oxygen. Keep the person warm and at rest. Obtain medical attention immediately.
<i>Ingestion:</i>	Obtain medical attention immediately. Intoxicating and dehydrating if ingested. (If ingested in undiluted form, it has a severe drying effect on mucous membranes of mouth and throat.) Never make an unconscious person vomit or drink fluids. Wash out mouth thoroughly, and give plenty of water to drink.
<i>Skin Contact:</i>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If persistent irritation occurs, obtain medical attention. Wash clothing before reuse.
<i>Eye Contact:</i>	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. If persistent irritation occurs, obtain medical attention.

5. Fire Fighting Measure

<i>Fire:</i>	Flammable liquid and vapor! Flash point: 16.6 °C (61.88 °F) Auto ignition temperature: 363 °C (685.4 °F) Flammable limits in air based on pure EA % by volume: Lower Flammable Limit: 3.3; Upper Flammable Limit: 19.0
<i>Explosion:</i>	Above normal condition, vapor-air mixtures are explosive within flammable limits noted above. Sealed containers may rupture when heated. Sensitive to static discharge.
<i>Extinguishing media:</i>	Dry chemical, alcohol-resistant foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool or protect personnel attempting to stop leak and disperse vapors.



<i>Specific Hazards:</i>	Containers exposed to intense heat from fires should be cooled with large quantities of water. The vapor is heavier than air and spreads along the ground and distant ignition is possible.
<i>Special Information:</i>	All storage areas should be provided with adequate firefighting facilities and equipment. The liquid produces a vapor that forms explosive mixtures with air especially in conditions at above flash point temperatures. In the event of a fire, contact the nearest fire station. For the company's own firefighters, they should wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.
<i>Special Firefighting Procedure:</i>	Stay upwind. Use self-contained breathing apparatus and protective clothing. Vapor may explode if ignited in an enclosed area. Cool exposed containers with water.

6. ACCIDENTAL CONTROL MEASURES

<i>Personal precautions:</i>	Avoid contact with skin, and eyes. Ventilate area of leak or spill thoroughly. Do not breathe vapor. Stay upwind and keep out of low areas. Remove all heat or ignition sources. Evacuate the area of all non-essential personnel. Shut off leaks, if possible without personal risk.
<i>Personal protection:</i>	Wear appropriate personal protective equipment (PPE) as specified in Section 8.
<i>Environmental precautions:</i>	Contain and recover liquid when possible with an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Use non-sparking tools and equipment. Prevent from spreading or entering into drains, ditches, rivers and other waterways by using sand, earth, or other appropriate barriers. Prevent contamination of soil and water.
<i>Clean-up methods - small spillage:</i>	Remove all ignition sources and ventilate area. Evacuate all non-essential personnel. Stop leak if without risk. Dilute with water and mop up, or absorb with an inert dry material and place in a sealable container. Label and seal waste containers for product recovery or appropriate disposal (see Section 13).
<i>Clean-up methods – large spillage:</i>	For large liquid spills (say more than a drum), remove all ignition sources. Evacuate all non-essential personnel. Stop leak if possible and without risk. Do not flush away residues with water. Blanket spill with alcohol resistant foam to limit evaporation or dike area to contain spill and absorb with earth, sand or other non-combustible material. Transfer to a labeled, sealable container for product recovery or proper disposal. Wear appropriate protective clothing to minimize contact with skin. Allow residues to evaporate or soak up with a suitable absorbent material and dispose safely and appropriately (see Section 13).



7. HANDLING AND STORAGE

Handling: Avoid inhaling vapor and/or mists. Avoid contact with skin, eyes, and clothing. Extinguish any naked flames or remove all ignition sources or sparks. Do not smoke. Electrostatic discharge may also cause fire. Ensure electrical continuity by bonding and grounding all equipment. Avoid splash filling. Do not use compressed air for filling, discharging, or handling operations.

Storage: Keep container in a cool, well-ventilated area, away from ignition and heat sources. Keep away from aerosols, oxidizing agents and corrosives. The vapor is heavier than air. Beware of accumulation in pits and confined spaces. Breathing losses during storage should be controlled by a suitable vapor treatment system. Store in a segregated and approved area. Keep container tightly closed and sealed until ready for use.

Product transfer: Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Metal containers should be bonded and grounded for transfers to avoid static sparks. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.

Recommended materials: For containers or container linings, use mild steel or stainless steel. For gasket and seals use compress asbestos, butyl rubber or Teflon.

Unsuitable materials: Do not store in certain plastic. May react with aluminum if temperature is more than 50°C.

Other Information: Ethyl Alcohol is available from PPCI in drums. Details are available upon request.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering Control Measure / Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Occupational Exposure Standards: American Conference of Governmental Industrial Hygienist (ACGIH)

Limit type: Threshold Limit Value (TLV) - the level of exposure that the typical worker can experience without an unreasonable risk of disease or injury.

Unit: Parts per million (ppm)

Value: 1,000



<i>Respiratory protection:</i>	Where local exhaust ventilation is not practicable, wear a full face-piece or a double cartridge respirator with organic vapor canister NPF 400. It may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face-piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
<i>Hand protection:</i>	PVC gloves, chemical resistant gloves or nitrile gloves.
<i>Eye protection:</i>	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
<i>Body Protection:</i>	Wear impervious protective clothing such as one-piece overall, including safety shoes or boots, gloves, laboratory coat, apron or any appropriate cotton-made clothing to prevent skin contact.
<i>Specific Hygiene Measures:</i>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Always maintain and practice good housekeeping.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Clear, colorless and highly volatile liquid
<i>Odor:</i>	Fruity odor
<i>Initial boiling point:</i>	77 °C (170.6 °F)
<i>Freezing point:</i>	-114.1 °C (-173.38 °F)
<i>Vapor Pressure:</i>	5.87 kPa @ 20 °C
<i>Specific Gravity:</i>	0.789 @ 20 °C
<i>Solubility:</i>	Miscible in water
<i>Dynamic viscosity:</i>	1.19 centipoise (cP) @ 25 °C
<i>Vapor density (air=1):</i>	1.59
<i>Flash point:</i>	16.6°C
<i>Auto-ignition temperature:</i>	363°C
<i>Lower flammable limit in air:</i>	3.30 % (v/v)
<i>Upper flammable limit in air:</i>	19.0 % (v/v)
<i>Molecular weight</i>	46.07 g/mole
<i>Evaporation rate, (NBAC = 1):</i>	3.10



10. STABILITY AND REACTIVITY

<i>Stability:</i>	Stable under normal temperature and pressure for use and storage.
<i>Conditions to avoid:</i>	Heat, flames, ignition sources and confined spaces. Slowly decomposed by moisture.
<i>Materials to avoid:</i>	Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.
<i>Hazardous decomposition products:</i>	Carbon dioxide and carbon monoxide may form when heated to decomposition.

11. TOXICOLOGICAL INFORMATIONS

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Oral rat, LD₅₀</i>	9,000 mg/kg
<i>Inhalation rat, LC₅₀</i>	2,000 ppm / 10 Hour
<i>Skin rabbit, LD₅₀</i>	20,000 mg/kg
<i>Eye irritation:</i>	Severe irritant.
<i>Skin irritation:</i>	Moderate irritant.
<i>Human effects:</i>	Causes skin and eye irritation. Ingestion can cause nausea, vomiting and inebriation. Chronic use can cause serious liver damage. Note that "absolute" alcohol, which is close to 100% ethanol, may nevertheless contain traces of 2-propanol, together with methanol or benzene. The latter two are very toxic, while "denatured" alcohol has substances added to it which make it unpleasant and possibly hazardous to consume.

12. ECOLOGICAL INFORMATION

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Environmental Fate:</i>	Ethanol is biodegradable and has not been shown to interfere in any way with waste water treatment plants. In high concentrations it harms fish and plankton. 9,000 mg/L kills fish in 24 hours; threshold for deleterious effects in small crustaceans (Daphnia): upwards of 7,800 mg/L. Toxic threshold concentration: pseudomonas putida upwards of 6,500 mg/L. Scenedesmus quadricauda upwards of 5,000 mg/L, Microsystis aeruginosa upwards of 1,450 mg/L. Fish toxicity: LC ₅₀ >10,000 mg/L.



Bioaccumulation: This material has a low bioaccumulation potential and not expected to significantly bioaccumulate.

13. Disposal Considerations

Precautions: Refer to Sections 7 before handling the product or containers.

Waste disposal: Whatever EA cannot be saved for recovery or treating, it should be managed in an appropriate and approved waste disposal facility. Care should in any case be taken to ensure disposal is compliant with statutory and regulatory requirements or local environmental laws.

Product disposal: This product is not suitable for disposal by either landfill or via local sewers, drains, natural streams or rivers. The following advice only applies to the product as supplied. Processing, use or contamination of this product may change the waste management options.

Container disposal: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not pressure cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. Send to drum handlers that clean, recondition or metal reclaimer. Disposal of container and unused contents must be in accordance to local regulatory requirements and environmental laws.

14. TRANSPORT INFORMATION

UN Number: 1170

Hazard Class: 3 (Flammable Liquid)

Packing Group: II (Flash Point = 16.6°C)

Proper shipping name: Ethyl Alcohol

15. OTHER INFORMATION

Philippine Prosperity Chemicals, Inc. provides the information contained herein in good faith and was obtained from sources which we believe are reliable. However, the information is provided without any warranty. The condition or methods of handling, storage, use and disposal are beyond our control and may be beyond our knowledge. For this and any other reasons we don't assume responsibility and disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use and disposal of the product. This document is intended only as a guideline to the appropriate precautionary handling of the material by properly trained personnel using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.