

ETHANOL, COMPLETELY DENATURED, FORMULA 19 (ANHYDROUS)

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1. Product Identification

Synonyms: Alcohol; spirits of wine; potato alcohol; CDA Formula 19

CAS No.: Not applicable to mixtures.

Molecular Weight: Not applicable to mixtures.

Chemical Formula: Not applicable to mixtures.

Product Codes: CHEM-074A and others

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ethyl Alcohol	64-17-5	95%	Yes
Methyl Isobutyl Ketone	108-10-1	4%	Yes
Kerosene	8008-20-6	<1%	Yes

3. Hazards Identification

Emergency Overview

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE CENTRAL NERVOUS SYSTEM, LIVER, KIDNEYS, BLOOD, AND REPRODUCTIVE SYSTEM.

SAF-T-DATA^(tm) Ratings

Health Rating: 2 - Moderate (Life)

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:

Ethanol vapors can produce CNS depression, eye and upper respiratory tract irritation. Symptoms may include burning sensation, headache, dizziness, tremors, nausea and other symptoms similar to ingestion.

Ingestion:

Dose-related central nervous system depression occurs, ranging from inebriation to anesthesia, narcosis, coma, respiratory failure, and death in significant exposures. Symptoms include headaches, tremors, fatigue, hallucinations, distorted perceptions, and convulsions.

Skin Contact:

Contact may result in skin dryness with mild irritation and redness.

Eye Contact:

Ethanol vapors irritate the eyes. Splashes cause burning and stinging sensation with watering of the eyes and reflex closure of the lids.

Chronic Exposure:

Chronic ethanol exposure may affect the central nervous system, liver, blood and reproductive system. Examples of chronic effects include physical dependence, malnutrition, neurological effects (e.g., amnesia, dementia, prolonged sleepiness). Chronic ingestion has been associated with cancers of the esophagus and liver. Repeated or prolonged skin contact may result in drying of the skin and dermatitis. Combined exposure to ethanol and certain other chemicals may result in increased toxic effects. Prolonged exposure may affect the kidneys.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, eye problems, liver disease, central nervous system disorders, or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Flash point: 13°C (55°F) CC

Autoignition temperature: 363°C (685°F)

Flammable limits in air % by volume: lel: 3.3; uel: 19.0

Listed values are for pure ethanol. Flammable Liquid and Vapor!

Explosion:

Sealed containers may rupture when heated. Above the flash point, explosive vapor-air mixtures may be formed. Vapor may explode if ignited in an enclosed area. Vapors can flow along surfaces to distant ignition source and flash back.

Fire Extinguishing Media:

Most appropriate extinguishers are carbon dioxide and alcohol-resistant foam. Use water in flooding quantities as fog. Water spray may be used to keep fire exposed containers cool. Do not allow water runoff to enter sewers or waterways.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in 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. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For Ethyl Alcohol:

OSHA Permissible Exposure Limit (PEL): 1,000 ppm (TWA)

ACGIH Threshold Limit Value (TLV): 1,000 ppm (STEL), A3 - Confirmed animal carcinogen with unknown relevance to humans.

Methyl Isobutyl Ketone:

OSHA Permissible Exposure Limit (PEL): 50 ppm (TWA), 75 (STEL)

ACGIH Threshold Limit Value (TLV): 50 ppm (TWA), 75 ppm (STEL)

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.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

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.

9. Physical and Chemical Properties

Appearance:

Clear, colorless liquid.

Odor:

Mild odor.

Solubility:

Infinitely soluble.

Specific Gravity:

0.80

pH:

No information found.

% Volatiles by volume @ 21°C (70°F):

No information found.

Boiling Point:

78°C (172°F)

Melting Point:

<-114°C (<-173°F)

Vapor Density (Air=1):

1.6 @ 19°C (66°F)

Vapor Pressure (mm Hg):

47 @ 25°C (77°F)

Evaporation Rate (BuAc=1):

~3.3

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Rapidly absorbs water from air.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Ethyl Alcohol is incompatible with strong oxidizing agents, perchlorates, aluminum, alkali metals, acetyl chloride, calcium hypochlorite, chlorine oxides, mercuric nitrate, hydrogen peroxide, nitric acid, bromine pentafluoride, chromyl chloride, permanganic acid, uranium hexafluoride, acetyl bromide. Ignites on contact with phosphorous (III) oxide; platinum; disulfuric acid + nitric acid; potassium tert-butoxide + acids. Will ignite and then explode on contact with acetic anhydride + sodium hydrogen sulfate. Forms explosive products in reaction with silver nitrate; ammonia + silver; silver (I) oxide + ammonia or hydrazine. Methyl Isobutyl Ketone is incompatible with aldehydes, nitric acid, perchloric acid, strong oxidizers. Violent reaction occurs with potassium-tert-butoxide. May form explosive peroxides in air.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Toxicological Data:

For Ethyl Alcohol: LD50 oral rat 7060 mg/kg; LC50 inhalation rat 20,000 ppm/10H; Irritation skin rabbit, std Draize, 20 mg/24H, moderate; Irritation eye rabbit, std Draize, 500 mg/24H, mild. Investigated as a tumorigen, mutagen, reproductive effector. For Methyl Isobutyl Ketone: Oral rat LD50: 2080 mg/kg; Skin rabbit > 20 mL/kg; irritation eye rabbit, Standard Draize, 40 mg severe; investigated as a reproductive effector. Kerosene irritation data (std Draize): skin, rabbit, 500 mg, severe. Investigated as a tumorigen and mutagen.

Reproductive Toxicity:

Ethanol has been linked to birth defects in humans. Ethanol crosses the placenta and can cause acute intoxication of the newborn or teratogenic effects, including fetal alcohol syndrome.

Cancer Lists

NTP Carcinogen

Ingredient	NTP Carcinogen		IARC Category
	Known	Anticipated	
Ethyl Alcohol (64-17-5)	No	No	None
Methyl Isobutyl Ketone (108-10-1)	No	No	None
Kerosene (8008-20-6)	No	No	None

12. Ecological Information

Environmental Fate:

Ethyl Alcohol Component:

When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material is expected to readily biodegrade. When released into water, this material may evaporate to a moderate extent. When released into the air, this material is expected to be readily degraded by photolysis.

Environmental Toxicity:

Ethyl Alcohol Component:

The LC50/96-hour values for fish are over 100 mg/L.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, METHYL ISOBUTYL KETONE)

Hazard Class: 3

UN/NA: UN1993

Packing Group: II

Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, METHYL ISOBUTYL KETONE)

Hazard Class: 3

UN/NA: UN1993

Packing Group: II

Information reported for product/size: 20L

International (Air, I.C.A.O.)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (ETHYL ALCOHOL, METHYL ISOBUTYL KETONE)

Hazard Class: 3

UN/NA: UN1993

Packing Group: II

Information reported for product/size: 20L

15. Regulatory Information

--- \ Chemical Inventory Status - Part 1 \ ---

Ingredient	TSCA	EC	Japan	Australia
Ethyl Alcohol (64-17-5)	Yes	Yes	Yes	Yes
Methyl Isobutyl Ketone (108-10-1)	Yes	Yes	Yes	Yes
Kerosene (8008-20-6)	Yes	Yes	No	Yes

--- \ Chemical Inventory Status - Part 2 \ ---

---Canada---

Ingredient	Korea	DSL	NDSL	Phil.
Ethyl Alcohol (64-17-5)	Yes	Yes	No	Yes
Methyl Isobutyl Ketone (108-10-1)	Yes	Yes	No	Yes
Kerosene (8008-20-6)	Yes	Yes	No	Yes

----- \Federal, State & International Regulations - Part 1\ -----					
Ingredient	-SARA 302-		-SARA 313-		Chemical Catg.
	RQ	TPQ	List		
Ethyl Alcohol (64-17-5)	No	No	No	No	No
Methyl Isobutyl Ketone (108-10-1)	No	No	Yes	No	No
Kerosene (8008-20-6)	No	No	No	No	No

----- \Federal, State & International Regulations - Part 2\ -----				
Ingredient	-RCRA-		-TSCA-	
	CERCLA	261.33	8(d)	
Ethyl Alcohol (64-17-5)	No	No	No	No
Methyl Isobutyl Ketone (108-10-1)	5000	U161	No	No
Kerosene (8008-20-6)	No	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
 Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 2[S]E

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 0

Label Hazard Warning:

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE CENTRAL NERVOUS SYSTEM, LIVER, KIDNEYS, BLOOD, AND REPRODUCTIVE SYSTEM.

Label Precautions:

Keep away from heat, sparks and flame.

Keep container closed.

Use only with adequate ventilation.

Avoid breathing vapor.

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent , Fuel and Consumer Hobby

Revision Information:

No Changes.

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