



**Chemical Name:** Denatured Alcohol

**Manufacturer:** Industrial Quality

**Container size:** 16oz.

**Location:** VLA

**Disposal:** Place empty container in trash. Give partial or full container to safety officer.

# DENATURED ALCOHOL

## 1. === Product Identification ===

**Synonyms:** Denatured Alcohol; Denatured Ethanol

**CAS No.:** Not applicable to mixtures.

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** Not applicable to mixtures.

## 2. === Composition/Information on Ingredients ===

Ingredient	CAS No	Percent	Hazardous
Ethyl Alcohol	64-17-5	91 - 93	Yes
Ethyl Acetate	141-78-6	1	Yes
Methyl Isobutyl Ketone	108-10-1	1	Yes
Methyl Alcohol	67-56-1	4 - 6	Yes

## 3. === Hazards Identification ===

### Emergency Overview

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**POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. FLAMMABLE LIQUID AND VAPOR. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT LIVER, BLOOD, KIDNEYS, GASTROINTESTINAL TRACT AND REPRODUCTIVE SYSTEM.**

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Health Rating: 2

Flammability Rating: 3

Reactivity Rating: 0

Contact Rating: 2 - Moderate

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

Storage Color Code: Red (Flammable)  
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### Potential Health Effects

#### Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Prolonged exposures to high concentration may cause drowsiness, loss of appetite, and inability to concentrate.

**Ingestion:**

Cause headaches, gastritis, intoxication, blindness and, in acute cases, death.

**Skin Contact:**

Causes skin irritation, cracking or flaking due to dehydration and defatting action.

**Eye Contact:**

Can cause eye irritation. Splashes may cause temporary pain and blurred vision.

**Chronic Exposure:**

Prolonged skin contact causes drying and cracking of skin. May affect the nervous system, liver, kidneys, blood, g.i. tract and reproductive system. Continued ingestion of small amounts could result in blindness.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

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**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 immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing 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.

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**5. === Fire Fighting Measures ===****Fire:**

Flash point: 13C (55F) CC

Autoignition temperature: 463C (865F)

Flammable limits in air % by volume:

lel: 3.3; uel: 19.0

Flammable liquid and vapor!

Dangerous fire hazard when exposed to heat or flame.

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective.

**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. Water spray can be used to extinguish fires and cool fire-exposed containers. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

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**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! 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.

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**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.

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**8. === Exposure Controls /Personal Protection ===**

**Airborne Exposure Limits:**

- OSHA Permissible Exposure Limit (PEL):

ethyl alcohol = 1000 ppm (TWA);

methyl alcohol = 200 ppm;

ethyl acetate = 400 ppm (TWA);

methyl isobutyl ketone = 100 ppm.

- ACGIH Threshold Limit Value (TLV):

ethyl alcohol = 1000 ppm (TWA);

methyl alcohol = 200 ppm (TWA), 250 ppm (STEL);

ethyl acetate = 400 ppm (TWA);  
methyl isobutyl ketone = 50 ppm (TWA), 75 ppm (STEL);  
gasoline = 300 ppm (TWA), 500 ppm (STEL), A3 - animal carcinogen.

**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, airtight 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.

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**9. === Physical/Chemical Properties ===**

**Appearance:**

Clear, colorless liquid.

**Odor:**

Pleasant odor.

**Solubility:**

Appreciable (> 10%)

**Specific Gravity:**

0.79 @ 20C/4C

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

77C (171F)

**Melting Point:**

No information found.

**Vapor Density (Air=1):**

1.6

**Vapor Pressure (mm Hg):**

45 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

3.3

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## 10. Stability and Reactivity Data

### Stability:

Stable under ordinary conditions of use and storage.

### Hazardous Decomposition Products:

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

### Hazardous Polymerization:

Will not occur.

### Incompatibilities:

Strong oxidants, silver salts, acid chlorides, alkali metals, metal hydrides, hydrazine, and many other substances.

### Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

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## 11. Toxicological Information

### Toxicological Data:

Ethyl alcohol: oral rat LD50= 7060mg/kg; inhalation rat LC50= 20,000ppm/10H; investigated as a tumorigen, mutagen, reproductive effector.

Methyl alcohol: oral rat LD50= 5628mg/kg; inhalation rat LC50= 64000ppm/4H; skin rabbit LD50= 15800mg/kg; investigated as a tumorigen, mutagen, reproductive effector.

Ethyl acetate: oral rat LD50= 5620mg/kg; inhalation rat LC50= 200gm/m<sup>3</sup>; skin rabbit LD50= > 20ml/kg; investigated as a mutagen.

Methyl isobutyl ketone: oral rat LD50= 2080 mg/kg; skin rabbit LD50= > 20ml/kg; investigated as a reproductive effector.

Gasoline: inhalation rat LC50= 300 gm/m<sup>3</sup>/5M.

### Reproductive Toxicity:

Ethanol has been linked to birth defects in humans.

### Carcinogenicity:

Gasoline: NIOSH considers this substance to be a potential occupational carcinogen.

-----\Cancer Lists\-----

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Ethyl Alcohol (64-17-5)	No	No	None
Ethyl Acetate (141-78-6)	No	No	None
Methyl Isobutyl Ketone (108-10-1)	No	No	None
Methyl Alcohol (67-56-1)	No	No	None

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## **12. === Ecological Information ===**

### **Environmental Fate:**

Following data for ethanol: When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material may leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material is expected to readily biodegrade. When released into water, this material may evaporate to a moderate extent. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

Following data for methanol: When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material is expected to leach into groundwater. When released into water, this material may biodegrade to a moderate extent. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days.

Following data for ethyl acetate: 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 may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into the water, this material is expected to have a half-life of less than 1 day. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Following data for methyl isobutyl ketone: When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may evaporate to a moderate extent. When released into the soil, this material is expected to leach into groundwater. When released to water, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

### **Environmental Toxicity:**

This material is not expected to be toxic to aquatic life. For ethanol, methanol, ethyl acetate and methyl isobutyl ketone: The LC50/96-hour values for fish are over 100 mg/l.

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## **13. === Disposal Considerations ===**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in 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. === MSDS Transport Information ===**

**Domestic (Land, D.O.T.)**  
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**Proper Shipping Name: Alcohols, N.O.S.**  
**Hazard Class: 3**  
**UN/NA: UN 1987**  
 Packing Group: II  
**Information reported for product/size:**

**International (Water, I.M.O.)**  
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**Proper Shipping Name: Alcohols, N.O.S.**  
**Hazard Class: 3**  
**UN/NA: UN1987**  
 Packing Group: II  
**Information reported for product/size:**

**International (Air, I.C.A.O.)**  
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**Proper Shipping Name: Alcohols, N.O.S.**  
**Hazard Class: 3**  
**UN/NA: UN1987**  
 Packing Group: II  
**Information reported for product/size:**

**15. === Regulatory Information ===**

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

Ingredient	TSCA	EC	Japan	
Australia				
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Ethyl Alcohol (64-17-5)	Yes	Yes	Yes	Yes
Ethyl Acetate (141-78-6)	Yes	Yes	Yes	Yes
Methyl Isobutyl Ketone (108-10-1)	Yes	Yes	Yes	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	Yes	Yes

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

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Ingredient	Korea	DSL	Phil.	---Canada---

Ethyl Alcohol (64-17-5)	Yes	Yes	No	Yes
Ethyl Acetate (141-78-6)	Yes	Yes	No	Yes
Methyl Isobutyl Ketone (108-10-1)	Yes	Yes	No	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient Catg.	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical
Ethyl Alcohol (64-17-5)	No	No	No	No
Ethyl Acetate (141-78-6)	No	No	No	No
Methyl Isobutyl Ketone (108-10-1)	No	No	Yes	No
Methyl Alcohol (67-56-1)	No	No	Yes	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8 (d)
Ethyl Alcohol (64-17-5)	No	No	No
Ethyl Acetate (141-78-6)	5000	U112	No
Methyl Isobutyl Ketone (108-10-1)	5000	U161	No
Methyl Alcohol (67-56-1)	5000	U154	No

Chemical Weapons Convention: No      TSCA 12(b): Yes      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: S5**

**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:**

POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. FLAMMABLE LIQUID AND VAPOR. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT LIVER, BLOOD, KIDNEYS, GASTROINTESTINAL TRACT AND REPRODUCTIVE SYSTEM.

**Label Precautions:**

Keep away from heat, sparks and flame.  
Avoid contact with eyes, skin and clothing.  
Avoid breathing vapor.  
Keep container closed.  
Use only with adequate ventilation.  
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. Get medical attention immediately. 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 while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

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