

SAFETY DATA SHEET

SDA 40B, 200 Proof

This SDS is valid for all grades and catalog #s

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

Product Identifier: Denatured Ethanol
Synonyms: Denatured Dehydrated Alcohol 40B; SDA 40B, 200; Denatured Ethanol
Other means of identification: CAS No. 64-17-5
EINECS No. 200-578-6

Recommended use of the chemical and restrictions on use:

General purpose organic solvent

Supplier Details:

Greenfield Global USA, Inc.
58 Vale Road, Brookfield,
CT 06804, USA.
Tel: 203.740.3471
Fax: 203.740.3481
CCN17213

Greenfield Global USA, Inc.
1101 Isaac Shelby Drive, Shelbyville,
KY 40065, USA.
Tel: 502.232.7600
Fax: 502.633.6100
CCN17213



Emergency Contact: CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

2. HAZARDS IDENTIFICATION

Emergency Overview:

This material is HAZARDOUS by OSHA Hazard Communication definition. Flammable Liquid. Material can burn with little or no visible flame. May be irritating to the eyes, skin, and respiratory system. May cause central nervous system depression.

OSHA Hazards:

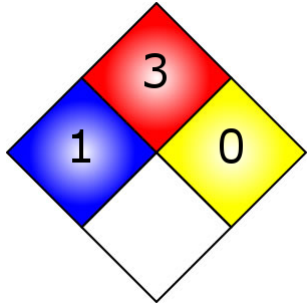
Flammable liquid, Target Organ Effect, Irritant

Target Organs:

Central nervous system, Heart, Liver



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NFPA **+1.703.527.3887 (INT)**



GHS label elements, including precautionary statements



Signal Word:

DANGER!

Hazard statement(s)

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.

Precautionary statement(s)

P501 Dispose of contents and container to an approved waste disposal plant.
P240 Ground/bond container and receiving equipment.
P337 + P313 If eye irritation persists: Get medical attention.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
P303 + P361 + P353 IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P210 Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
P233 Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P243 Take precautionary measures against static discharge.
P241 Use explosion-proof electrical, ventilating, and lighting equipment.



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P242 Use only non-sparking tools.
 P264 Wash hands thoroughly after handling.
 P280 Wear protective gloves and eye and face protection.

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GHS Classification(s)

Eye irritation (Category 2B)
 Flammable Liquids (Category 2)
 Skin irritation (Category 2)

Other hazards which do not result in classification:

Potential Health Effects:

Organ	Description
Eyes	Causes eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.
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, coma and possible death due to respiratory failure.
Inhalation	High concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation.
Skin	Causes moderate skin irritation. May cause dermatitis by de-fatting the skin from prolonged or repeated contact.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity: Alcohol
Common name / Synonym: Denatured Dehydrated Alcohol 40B; SDA 40B, 200; Denatured Ethanol
CAS number: 64-17-5
EINECS number: 200-578-6
ICSC number: 0044
RTECS #: KQ6300000
UN #: UN1987
EC #: 603-002-00-5

% Weight	Material	CAS
0.0006	Denatonium Benzoate	3734-33-6
99.874	Ethyl Alcohol	64-17-5
0.12	tert-Butyl Alcohol	75-65-0

4. FIRST AID MEASURES

General advice



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Take proper precautions to ensure your own health and safety before attempting rescue and first aid. **1.703.627.9887 (INT)**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. Contact a doctor. If irritation persists, get medical attention.

Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

Note to Physician

Symptoms vary with alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05- 0.15 %. Approximately 25% of individuals show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol; 50-95% of individuals are clinically intoxicated at these levels. Severe poisoning occurs when the blood is ethanol level is 0.3- 0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of depressant drugs or the excessive administration of fluids.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam. Cool all affected containers with flooding quantities of water.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Carbon monoxide is expected to be the primary hazardous combustion product.

Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

Unusual Fire and Explosion Hazards:

- May produce a floating fire hazard.
- Static ignition hazard can result from handling and use.
- Vapors may settle in low or confined spaces.



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- Vapors may travel to source of ignition and flash back.

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Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.

Flammable Properties

Classification

OSHA/NFPA Class IB Flammable Liquid.

Flash point

14°C (58°F) - closed cup

Autoignition temperature

363.0 °C (685.4 °F) - (Ethyl Alcohol)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:

Highly flammable liquid. Eliminate all sources of ignition. All equipment used when handling this product must be grounded. A vapor suppressing foam may be used to reduce vapors. Do not touch or walk through spilled material. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations. Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. Open and handle container with care. Metal containers involved in the transfer of this material should be grounded and bonded.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a cool, dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Consult local fire codes for additional storage information.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
Denatonium Benzoate	/		No exposure limit	
Ethyl alcohol	US (OSHA)	TWA	1000 ppm / 1,900 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.
Ethyl alcohol	US (ACGIH)	STEL	1000 ppm	Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans
Ethyl alcohol	US (OSHA)	IDHL	3300 ppm	None
tert-Butyl Alcohol	US (ACGIH)	TWA	100 ppm, 300 mg/m ³	ACGIH Threshold Limit Value
tert-Butyl Alcohol	US (OSHA)	STEL	150 ppm	OSHA Table Z-1 Limits for Air Contaminants

Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as personal protective equipment:

Respiratory protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (<i>physical state, color, etc.</i>)	Liquid. Colorless liquid / invisible vapor.
Odor	Characteristic
Freezing point	-114°C (-173°F)
Initial boiling point and boiling range	78.3 °C (172.9 °F)
Flash point	14°C (58°F) - closed cup
Evaporation rate	Specific data not available - expected to be rapid.
Flammability (solid, gas)	Flammable
Upper / Lower flammability or explosive limits	3.3%(V) / 19%(V) (for 100% ethanol)
Vapor pressure	59.5 hPa (44.6 mmHg) at 20°C (68 °F) (for 100% ethanol)
Vapor Density	1.6 (air =1)
Relative Density	0.796 g/mL at 25 °C (77 °F)
Solubility(ies)	completely soluble
Auto-ignition temperature	363°C (685.4°F) - (Ethyl Alcohol)
Decomposition temperature	Not pertinent
Formula (ETHANOL)	C ₂ H ₆ O
Formula (tert-BUTYL ALCOHOL)	C ₄ H ₁₀ O
Molecular Weight (ETHANOL)	46.07 g/mol
Molecular Weight (tert-BUTYL ALCOHOL)	74.12 g/mol

10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	Vapors may form explosive mixture with air.
Conditions to avoid (e.g., static discharge, shock or vibration)	Heat, flames, and sparks. Extreme temperatures and direct sunlight.
Incompatible materials	Alkali metals, Ammonia, Oxidizing agents, Peroxides, Strong Inorganic Acids
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

- Ethyl Alcohol 64-17-5

Signs and Symptoms of Exposure

Central nervous system depression, narcosis, damage to the heart. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Product Summary:

Ethanol is not toxic by OSHA standards. Coingestion of sedative hypnotics or tranquilizers can increase the toxic affects of ethanol.



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Acute Toxicity:

LC50 (inhl)	Rat	20000ppm	10 hrs.
LC50 (Oral)	Rat	7060mg/Kg BWT	
LDLo (Oral)	Human	1400 mg/Kg BWT	

Irritation:

Eyes (ETHANOL)

Eye exposure to Ethanol generally causes transient pain, irritation, and reflex lid closure. A foreign-body sensation may persist for one to two days. Vapors produce transient stinging and tearing, but no apparent adverse effects. Transiently impaired preception of color may occur with acute ingestion or chronic alcoholism. Standard Draize eye test (rabbit) - Dose: 500 mg Reaction: Severe Dose: 500 mg/24 hrs Reaction: Mild

Skin

Standard Draize skin test (rabbit) - Dose: 20 mg/24 hrs Reaction: Moderate Repeated exposure may cause skin dryness or cracking.

Carcinogenicity

IARC: Not classifiable as a human carcinogen.

ACGIH: Not classifiable as a human carcinogen.

NTP: Not classifiable as a human carcinogen.

OSHA: Not classifiable as a human carcinogen.

Other Hazards

Organ	Description
Eyes	Irritating to the eyes. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.
Ingestion	May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. Advanced stages can lead to respiratory failure, kidney failure, coma, and death.
Inhalation	Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation.
Skin	Mildly irritating to the skin. May cause dermatitis by de-fatting the skin from prolonged or repeated contact.
Chronic	Prolonged exposure can cause liver, kidney, and heart damage. Long term exposure can cause loss of appetite, weight loss, nervousness, memory loss, mental retardation.

- Denatonium Benzoate 3734-33-6

Product Summary:

No data available for the mutagenic, teratogenic, or reproductive effects of the product.



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Acute Toxicity: +1.703.527.3887 (INT)

LD50 (Oral)	Rat	584 mg/kg	
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Irritation:

Eyes

Causes eye irritation.

Skin

Slightly irritating to the skin. Repeated contact with neat product may dry the skin causing cracking and/or fissuring.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	Irritating to the eyes.
Ingestion	Harmful if ingested.
Inhalation	May be harmful if inhaled. Irritating to the respiratory tract.
Skin	Harmful if absorbed through skin. Irritating to skin.

- tert-Butyl Alcohol 75-65-0

Product Summary:

t-Butanol is a known animal carcinogen. It has no confirmed teratogenic, mutagenic, or reproductive effects in humans.

Acute Toxicity:

LD50 (Dermal)	Rabbit	>2,000 mg/kg	
LD50 (Oral)	Rat	2,743 mg/kg	

Irritation:

Eyes

Rabbit - Irritating to eyes - 24 hours



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Skin

Skin - rabbit - Mild skin irritation - 24 hours

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	Irritating to the eyes.
Ingestion	Harmful if ingested.
Inhalation	May be harmful if inhaled. Irritating to the respiratory tract.
Skin	Harmful if absorbed through skin. Irritating to skin.
Chronic	Prolonged or repeated breathing of high concentrations may cause symptoms of central nervous system depression. May cause dermatitis by defatting the skin from prolonged or repeated contact. This material has been shown to induce tumors in laboratory animals. These findings are not likely relevant to humans. May be toxic to the developing embryo and fetus.

12. ECOLOGICAL INFORMATION

- Ethyl Alcohol 64-17-5

Ecotoxicity (aquatic and terrestrial, where available):

Acute Fish toxicity (ETHANOL)

LC50 / 96 HOUR Oncorhynchus mykiss (rainbow trout) > 10,000 mg/l

LC50 / 96 HOUR Pimephales promelas (fathead minnow) > 13,400 mg/l

Toxicity to aquatic plants (ETHANOL)

Growth inhibition / 96 HOURS Chlorella vulgaris (Fresh water algae) 1,000 mg/l

Toxicity to microorganisms (ETHANOL)

Toxicity Threshold / Pseudomonas putida 6,500 mg/l

Summary: Inhibition of cell multiplication begins.



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Persistence and degradability:

Biodegradation is expected.

Bioaccumulative potential:

Biaccumulation is unlikely

• Denatonium Benzoate 3734-33-6

Ecotoxicity (aquatic and terrestrial, where available):

Acute Fish Toxicity (DENATONIUM BENZOATE)

LC50 / 96 hours Rainbow Trout >1000 mg/L

Persistence and degradability:

No data available

Bioaccumulative potential:

Biaccumulation is unlikely

• tert-Butyl Alcohol 75-65-0

Ecotoxicity (aquatic and terrestrial, where available):

Acute Fish Toxicity (tert-BUTYL ALCOHOL)

LC50 / 96 h Pimephales promelas (fathead minnow) - 6,140 mg/L

Toxicity to Aquatic Plants (tert-BUTYL ALCOHOL)

Growth inhibition / 96 HOURS Chlorella vulgaris (Fresh water algae)- 1,000 mg/L

Persistence and degradability:

Biodegradability: Zahn-Wellens Test Result: > 99.9 % - Readily biodegradable.

Bioaccumulative potential:

Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:



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Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care. This material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	UN1987
UN proper shipping name	Alcohols, n.o.s.
Transport hazard class(es)	3
Packing group (if applicable)	II

IMDG

UN-Number: UN1987 Class: 3 Packing Group: II
 EMS-No: F-E, S-D
 Proper shipping name: ALCOHOLS, N.O.S.
 Marine pollutant: No

IATA

UN-Number: UN1987 Class: 3 Packing Group: II
 Proper shipping name: Alcohols, n.o.s.

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Flammable liquid, Target Organ Effect, Irritant

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

The following components are subject to reporting levels established by SARA title III, Section 302.4 (INT)
Alcohol CAS-No. 75-65-0 Revision Date 2007-07-01

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

CERCLA

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA

Massachusetts Right To Know Components

Ethanol CAS-No.64-17-5 Revision Date 2007-03-01

tert-Butyl alcohol CAS-No. 75-65-0 Revision Date 2007-07-01

Pennsylvania Right To Know Components

Denatonium Benzoate CAS-No. 3734-33-6

Ethanol CAS-No.64-17-5 Revision Date 2007-03-01

tert-Butyl alcohol CAS-No. 75-65-0 Revision Date 2007-07-01

New Jersey Right To Know Components

Denatonium benzoate CAS-No. 3734-33-6

Ethanol CAS-No.64-17-5 Revision Date 2007-03-01

tert-Butyl alcohol CAS-No. 75-65-0 Revision Date 2007-07-01

California Prop 65 Components

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (ETHYL ALCOHOL) CAS No. 64-17-5 Revision Date: December 11, 2009

**16. OTHER INFORMATION:
INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**



PHARMCO
by Greenfield Global

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

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