



Fisher Scientific

Part of Thermo Fisher Scientific

Material Safety Data Sheet

Creation Date 24-Apr-2009

Revision Date 29-Oct-2012

Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

| | |
|------------------------|--|
| Product Name | Ethanol, 200 Proof |
| Cat No. | A992-RS200; BP2818-4, BP2818-100; BP2818-500 |
| Synonyms | Absolute Ethanol; Ethyl Alcohol; Molecular Biology Grade |
| Recommended Use | Laboratory chemicals |
| Company | Emergency Telephone Number |
| Fisher Scientific | CHEMTREC®, Inside the USA: 800- |
| One Reagent Lane | 424-9300 |
| Fair Lawn, NJ 07410 | CHEMTREC®, Outside the USA: 001- |
| Tel: (201) 796-7100 | 703-527-3887 |

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Extremely flammable liquid and vapor. Vapor may cause flash fire. Aspiration hazard if swallowed - can enter lungs and cause damage. Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes. Cancer hazard. This substance has caused adverse reproductive and fetal effects in humans. Hygroscopic.

Appearance Clear, Colorless

Physical State Liquid

odor sweet, Characteristic

Target Organs

Eyes, Central nervous system (CNS), Reproductive System, Liver, Kidney, Blood

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes

Irritating to eyes.

Skin

May cause irritation. Harmful in contact with skin.

Inhalation

May cause irritation of respiratory tract. Inhalation may cause central nervous system effects. Harmful by inhalation.

Ingestion

Harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects Cancer hazard.. This substance has caused adverse reproductive and fetal effects in humans. Substances known to cause developmental toxicity in humans. Tumorigenic effects have been reported in experimental animals.. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions Central nervous system disorders. Preexisting eye disorders. Liver disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

| Component | CAS-No | Weight % |
|---------------|---------|----------|
| Ethyl alcohol | 64-17-5 | 99-100 |

4. FIRST AID MEASURES

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

Ingestion Do not induce vomiting. Obtain medical attention.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point 12°C / 53.6°F

Method No information available.

Autoignition Temperature 363°C / 685.4°F

Explosion Limits

| | |
|--------------|-----------|
| Upper | 19 vol % |
| Lower | 3.3 vol % |

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray to cool unopened containers.

Unsuitable Extinguishing Media Water may be ineffective

Hazardous Combustion Products No information available.

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA **Health** 2 **Flammability** 3 **Instability** 0 **Physical hazards** N/A

6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| Personal Precautions | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. |
| Environmental Precautions | Should not be released into the environment. |
| Methods for Containment and Clean Up | Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.. Take precautionary measures against static discharges. |

7. HANDLING AND STORAGE

| | |
|-----------------|---|
| Handling | Wear personal protective equipment. Ensure adequate ventilation. Use explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest. |
| Storage | Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Flammables area. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---------------|----------------|--|--|
| Ethyl alcohol | STEL: 1000 ppm | (Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³ | IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³ |

| Component | Quebec | Mexico OEL (TWA) | Ontario TWAEV |
|---------------|--|--|----------------|
| Ethyl alcohol | TWA: 1000 ppm TWA: 1880 mg/m ³ | TWA: 1000 ppm TWA: 1900 mg/m ³ | STEL: 1000 ppm |

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State

Liquid

Appearance

Clear, Colorless

odor

sweet, Characteristic

Odor Threshold

No information available.

pH

No information available.

Vapor Pressure

No information available.

Vapor Density

No information available.

Viscosity

No information available.

Boiling Point/Range

78°C / 172.4°F

Melting Point/Range

-114°C / -173.2°F

Decomposition temperature

No information available.

Flash Point

12°C / 53.6°F

Evaporation Rate

No information available.

Specific Gravity

No information available.

Solubility

No information available.

log Pow

No data available

Molecular Weight

46.07

Molecular Formula

C₂ H₆ O

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions. Hygroscopic.

Conditions to Avoid

Incompatible products. Heat, flames and sparks.

| | |
|---|--|
| Incompatible Materials | Strong oxidizing agents, Strong acids, Acid anhydrides, Acid chlorides |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂) |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions . | None under normal processing.. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation (Dust) |
|---------------|--------------------|-------------|------------------------|
| Ethyl alcohol | 7060 mg/kg (Rat) | Not listed | 20000 ppm/10H (Rat) |

Irritation Irritating to eyes

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | ACGIH | IARC | NTP | OSHA | Mexico |
|---------------|-------|---------|------------|------|------------|
| Ethyl alcohol | A3 | Group 1 | Not listed | X | Not listed |

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

OSHA: (Occupational Safety & Health Administration)

OSHA: (Occupational Safety & Health Administration)

X - Present

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens

A1 - Confirmed Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Confirmed Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen

A5 - Not Suspected as a Human Carcinogen

Sensitization No information available.

Mutagenic Effects Mutagenic effects have occurred in humans.

Reproductive Effects Adverse reproductive effects have occurred in humans..

Developmental Effects Substances known to cause developmental toxicity in humans.

Teratogenicity Teratogenic effects have occurred in humans..

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---------------|------------------|-------------------------------------|---|---|
| Ethyl alcohol | Not listed | Leucidus idus: LC50 = 8.14 mg/L/48h | Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 = 35470 mg/L/5 min | EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h |

Persistence and Degradability Readily biodegradable.

Bioaccumulation/ Accumulation No information available

Mobility .

| Component | log Pow |
|---------------|---------|
| Ethyl alcohol | -0.32 |

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

14. TRANSPORT INFORMATION

DOT

UN-No UN1170
Proper Shipping Name ETHANOL
Hazard Class 3
Packing Group II

TDG

UN-No UN1170
Proper Shipping Name ETHANOL
Hazard Class 3
Packing Group II

14. TRANSPORT INFORMATION

IATA

| | |
|-----------------------------|---------|
| UN-No | UN1170 |
| Proper Shipping Name | ETHANOL |
| Hazard Class | 3 |
| Packing Group | II |

IMDG/IMO

| | |
|-----------------------------|---------|
| UN-No | UN1170 |
| Proper Shipping Name | ETHANOL |
| Hazard Class | 3 |
| Packing Group | II |

15. REGULATORY INFORMATION

International Inventories

| Component | TSCA | DSL | NDSL | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | CHINA | KECL |
|---------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Ethyl alcohol | X | X | - | 200-578-6 | - | | X | X | X | X | X |

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Not applicable

SARA 311/312 Hazardous Categorization

| | |
|-----------------------------------|-----|
| Acute Health Hazard | Yes |
| Chronic Health Hazard | Yes |
| Fire Hazard | Yes |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

Clean Water Act

Not applicable

Clean Air Act

Not applicable

OSHA

Not applicable

CERCLA

Not Applicable

California Proposition 65

This product contains the following Proposition 65 chemicals: Ethyl alcohol is only a considered a Proposition 65 developmental hazard when it is ingested as an alcoholic beverage.

| Component | CAS-No | California Prop. 65 | Prop 65 NSRL |
|---------------|---------|---------------------|--------------|
| Ethyl alcohol | 64-17-5 | Developmental | - |

State Right-to-Know

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------|---------------|------------|--------------|----------|--------------|
| Ethyl alcohol | X | X | X | - | X |

U.S. Department of Transportation

Reportable Quantity (RQ): N
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

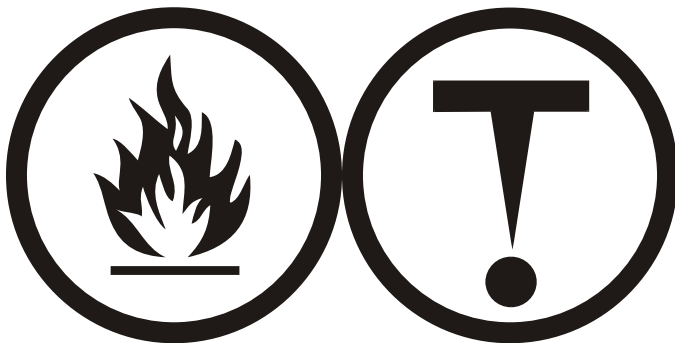
Mexico - Grade Serious risk, Grade 3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

B2 Flammable liquid
 D2B Toxic materials



16. OTHER INFORMATION

Prepared By Regulatory Affairs
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Revision Summary "****", and red text indicates revision

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS