



Fisher Scientific

Part of Thermo Fisher Scientific Material Safety Data Sheet

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Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

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

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

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

| 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. Get medical attention if symptoms occur. |
| Inhalation | Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur. |
| 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. Cool closed containers exposed to fire with water spray. |
| Unsuitable Extinguishing Media | Water may be ineffective, Do not use a solid water stream as it may scatter and spread fire |
| 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. Vapors may form explosive mixtures with air.

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. Use spark-proof tools and explosion-proof equipment. |

7. HANDLING AND STORAGE

| | |
|-----------------|---|
| Handling | Wear personal protective equipment. Ensure adequate ventilation. 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. Use spark-proof tools and explosion-proof equipment. |
| 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 |

Legend

NIOSH IDLH: *The National Institute for Occupational Safety and Health 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 | C ₂ H ₆ O |

10. STABILITY AND REACTIVITY

Stability Hygroscopic.

| | |
|---|---|
| Conditions to Avoid | Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition. |
| 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

Product Information

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---------------|----------------------|-------------|-----------------------|
| Ethyl alcohol | 3450 mg/kg (Mouse) | 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

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OSHA: (Occupational Safety & Health Administration)

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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 | EC50 (72h) = 275 mg/l (Chlorella vulgaris) | Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h | 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 Will likely be mobile in the environment due to its water solubility.

| 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

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 | IECSC | 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 Occupational Safety and Health Administration
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 | Category |
|---------------|---------|---------------------|--------------|--------------------------|
| Ethyl alcohol | 64-17-5 | Developmental | - | Developmental Carcinogen |

State Right-to-Know

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------|---------------|------------|--------------|----------|--------------|
| Ethyl alcohol | X | 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
 D2A Very toxic materials
 D2B Toxic materials



16. OTHER INFORMATION

Prepared By Regulatory Affairs
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Revision Summary
 (M)SDS sections updated 2 3

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