

SAFETY DATA SHEET

Revision Date 01-April-2024

Revision Number 4

1. Identification

Product Name Ethanol, anhydrous, denatured

Cat No. : 36642

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Importer/Distributor

Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity	Category 3
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 1
Target Organs - Optic nerve, Central nervous system (CNS).	

Label Elements

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor
Harmful if swallowed

Toxic if inhaled
Causes serious eye irritation
Causes damage to organs



Precautionary Statements

Prevention

Ground/bond container and receiving equipment
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Use non-sparking tools
Take action to prevent static discharges

Response

Rinse mouth
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Call a POISON CENTER/ doctor
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Poison, may be fatal or cause blindness if swallowed

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Ethyl alcohol	64-17-5	85.8
Methanol	67-56-1	13.30
2-Pentanone, 4-methyl-	108-10-1	0.90

4. First-aid measures

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Call a physician or poison control center immediately. Do NOT induce vomiting.
Most important symptoms/effects	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Carbon dioxide (CO ₂). Powder. Water spray. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	11 °C / 51.8 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

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

Hazardous Combustion Products

None known.

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	Flammability	Instability	Physical hazards
3	3	1	-

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open
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flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage.

Store under an inert atmosphere. Keep container tightly closed in a dry and well-ventilated place. Protect from moisture. Keep away from heat, sparks and flame. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m ³	STEL: 1000 ppm	STEL: 1000 ppm	STEL: 1000 ppm	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
Methanol	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ Skin	TWA: 200 ppm STEL: 250 ppm Skin	TWA: 200 ppm STEL: 250 ppm Skin	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ Skin	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m ³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m ³ Skin TWA: 200 ppm TWA: 260 mg/m ³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 325 mg/m ³
2-Pentanone, 4-methyl-	TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 307 mg/m ³	TWA: 20 ppm STEL: 75 ppm	TWA: 20 ppm STEL: 75 ppm	TWA: 20 ppm STEL: 75 ppm	TWA: 20 ppm STEL: 75 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 205 mg/m ³ (Vacated) STEL: 75 ppm (Vacated) STEL: 300 mg/m ³ TWA: 100 ppm TWA: 410 mg/m ³	IDLH: 500 ppm TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 300 mg/m ³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

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.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment**Eye Protection**

Goggles

Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Butyl rubber	480 minutes	0.3 mm	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. 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.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: SCBA

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Alcohol
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	80 °C / 176 °F
Flash Point	11 °C / 51.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	0.811 g/cm3
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H6 O
Molecular Weight	46.08

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Hygroscopic.
Conditions to Avoid	Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Oxidizing agent

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50

Category 4. ATE = 300 - 2000 mg/kg.

Dermal LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50

Category 3. ATE = 2 - 10 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl alcohol	LD50 = 10470 mg/kg OECD 401 (Rat) 3450 mg/kg (Mouse)	Not listed	LC50 = 117-125 mg/l (4h) OECD 403 (rat) 20000 ppm/10H (rat)
Methanol	LD50 = 1187 – 2769 mg/kg (Rat)	LD50 = 17100 mg/kg (Rabbit)	LC50 = 128.2 mg/L (Rat) 4 h
2-Pentanone, 4-methyl-	LD50 = 2080 mg/kg (Rat)	LD50 = 3000 mg/kg (Rabbit)	LC50 2000 - 4000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

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

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethyl alcohol	64-17-5	Not listed	Known	A3	Not listed	A3
Methanol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed
2-Pentanone, 4-methyl-	108-10-1	Group 2B	Not listed	A3	X	A3

IARC: (International Agency for Research on Cancer)

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Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects No information available

Reproductive Effects California Proposition 65. Reproductive toxicity.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Optic nerve Central nervous system (CNS)

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Contains a substance which is: Toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

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
Methanol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
2-Pentanone, 4-methyl-	EC50: 400 mg/L/96h	LC50: 496 - 514 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 79.6 mg/L 5 min	EC50: 4280.0 mg/L/24h EC50: 170 mg/L/48h EC50: 4280.0 mg/L/24h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Ethyl alcohol	-0.32
Methanol	-0.74
2-Pentanone, 4-methyl-	1.9

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.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methanol - 67-56-1	U154	-
2-Pentanone, 4-methyl- - 108-10-1	U161	-

14. Transport information

DOT

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Technical Name (ETHANOL (ETHYL ALCOHOL), METHANOL)
 Hazard Class 3
 Packing Group II

TDG

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group II

IATA

UN-No UN1993

Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group II

IMDG/IMO

UN-No UN1993
 Proper Shipping Name Flammable liquid, n.o.s.
 Hazard Class 3
 Packing Group II

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Ethyl alcohol	64-17-5	X	-	X	ACTIVE	200-578-6	-	-
Methanol	67-56-1	X	-	X	ACTIVE	200-659-6	-	-
2-Pentanone, 4-methyl-	108-10-1	X	-	X	ACTIVE	203-550-1	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Ethyl alcohol	64-17-5	X	KE-13217	X	X	X	X	X	X
Methanol	67-56-1	X	KE-23193	X	X	X	X	X	X
2-Pentanone, 4-methyl-	108-10-1	X	KE-24725	X	X	X	X	X	X

Legend:

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Ethyl alcohol	Part 5, Individual Substances Part 4 Substance		
Methanol	Part 1, Group A Substance Part 5, Individual Substances Part 4 Substance		
2-Pentanone, 4-methyl-	Part 1, Group A Substance Part 5, Individual Substances Part 4 Substance		

Legend

NPRI - National Pollutant Release Inventory

Other International Regulations**Authorisation/Restrictions according to EU REACH**

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methanol	-	Use restricted. See item 69.	-

		(see link for restriction details) Use restricted. See item 75. (see link for restriction details)	
2-Pentanone, 4-methyl-	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Ethyl alcohol	64-17-5	Listed	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	Listed	Not applicable	Not applicable	Not applicable
2-Pentanone, 4-methyl-	108-10-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Ethyl alcohol	64-17-5	Not applicable	Not applicable	Not applicable	Annex I - Y42
Methanol	67-56-1	500 tonne	5000 tonne	Not applicable	Not applicable
2-Pentanone, 4-methyl-	108-10-1	Not applicable	Not applicable	Not applicable	Annex I - Y42

16. Other information

Prepared By

Product Safety Department
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Revision Date

01-April-2024

Print Date

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Revision Summary

New emergency telephone response service provider.

Disclaimer

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

End of SDS