Ethanol

SECTION 1. IDENTIFICATION

Product Identifier	Ethanol
Other Means of Identification	2A alcohol, 2A solvent, DAG-2A
Other Identification	EU EINECS/ELINCS Number: 200-578-6
Restrictions on Use	All others.
Manufacturer/Supplier Identifier	Caledon Laboratories Ltd, 40 Armstrong Avenue, Georgetown, Ontario, L7G-4R9, (905) 877-0101, www.caledonlabs.com
Emergency Phone No.	CANUTEC, (613) 996-6666
SDS No.	0156

SECTION 2. HAZARD IDENTIFICATION

Classification

Flammable liquid - Category 2; Skin irritation - Category 2; Eye irritation - Category 2B; Specific target organ toxicity (single exposure) - Category 3

Label Elements

Signal Word:
Danger
Hazard Statement(s):
Highly flammable liquid and vapour.
Harmful if swallowed.
Causes skin and eye irritation.
May cause respiratory irritation.
May cause damage to organs.
Precautionary Statement(s):
Do not handle until all safety precautions have been read and understood.
Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.
Keep container tightly closed.
If eye irritation persists: Get medical advice or attention.
Ground/bond container and receiving equipment.
Use explosion-proof electrical, ventilating, and lighting equipment.
Use only non-sparking tools.
Take action to prevent static discharges.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands thoroughly after handling.
Wear protective gloves/eye protection/face protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

In case of fire: Use appropriate foam, dry chemical powder to extinguish.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container to
An approved waste disposal plant.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Ethanol	64-17-5	85.5	EU EINECS/ELINCS Number: 200-578-6
Methanol	67-56-1	13.7	EU EINECS/ELINCS Number: 200-659-6
Ethyl acetate	141-78-6	0.85	EU EINECS/ELINCS Number: 205-500-4

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Move to fresh air. Artificial respiration should be given if breathing has stopped and cardiopulmonary resuscitation if heart has stopped. Oxygen may be given if necessary. Call a Poison Centre or doctor if you feel unwell.

Skin Contact

Immediately wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 15-20 minutes. Take off immediately contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely. If skin irritation occurs, get medical advice or attention.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. DO NOT INDUCE VOMITING. Have victim drink about 250ml (8fl. oz.) of water to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Seek medical assistance immediately.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled and/or swallowed: large amounts symptoms may include headache, nausea, dizziness, drowsiness and confusion. A severe exposure can cause unconsciousness.

Immediate Medical Attention and Special Treatment

Target Organs

Liver.

Special Instructions

Symptoms of ethanol intoxication vary with the alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05% - 0.15% and approximately 25% of individuals will show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol and 50-95% of individuals at this level are clinically intoxicated. Severe poisoning occurs when the blood ethanol level is 0.3-0.5%. Above 0.05% 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. This product contains 13.7% v/v of methanol, a toxic substance having upon ingestion, produced blindness

and other serious effects on vision, as well as death. However, this product also contains the accepted antidote, ethanol (95.2 v/v). This product also contains ethyl acetate at a concentration of 0.85% volume.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Large fire: Special "alcohol resistant fire-fighting foams". Small fire: Carbon dioxide, dry chemical powder or appropriate foam.

Unsuitable Extinguishing Media

Water is not effective for extinguishing a fire. It may not cool product below its flash point.

Specific Hazards Arising from the Product

May travel a considerable distance to a source of ignition and flash back to a leak or open container.
In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

Special Protective Equipment and Precautions for Fire-fighters

Knock down vapours or gases with water fog or fine water spray. Dike and recover contaminated water for appropriate disposal.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources. Use grounded, explosion-proof equipment.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Contaminated absorbent poses the same hazard as the spilled product.

Other Information

Contact supplier, local fire and emergency services for help.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Electrically bond and ground equipment. Ground clips must contact bare metal. Keep containers tightly closed when not in use or empty. Wear personal protective equipment to avoid direct contact with this chemical. Do NOT smoke in work areas. Wash hands thoroughly after handling this material.

Conditions for Safe Storage

Store in an area that is: cool, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH TLV®		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
Ethanol		1000 ppm				

Methanol	200 ppm	250 ppm	200 ppm			
Ethyl acetate	400 ppm		Not established			

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Provide safety shower in work area, if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Neoprene rubber, butyl rubber, natural rubber.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an organic vapour cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless.
Odour	Alcoholic
Odour Threshold	0.1 - 5100 ppm
pH	Not available
Melting Point/Freezing Point	~ -110 ºC (-166 ºF) (melting); ~ -110 ºC (-166 ºF) (freezing)
Initial Boiling Point/Range	~ 72 ºC (162 ºF)
Flash Point	12.5 ºC (54.5 ºF) (closed cup)
Evaporation Rate	1.8 (n-butyl acetate = 1)
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	36% (upper); 2.2% (Ethanol) (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	1.53
Relative Density (water = 1)	0.7889 at 20 ºC
Solubility	Soluble in all proportions in water; Soluble in all proportions in common organic solvents.
Partition Coefficient, n-Octanol/Water (Log Kow)	~ 0.032
Auto-ignition Temperature	~ 422 ºC (792 ºF)
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); Not available (dynamic)

Other Information

Physical State	Liquid
Molecular Formula	CH3CH2OH
Molecular Weight	46.07

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid), oxidizing agents (e.g. peroxides), acid anhydrides (e.g. acetic anhydride).

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; very toxic, flammable formaldehyde.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Ethanol	31623 ppm (rat) (4-hour exposure)	7060 mg/kg (rat)	20000 mg/kg (rabbit)
Methanol	64000 mg/kg (rat) (4-hour exposure)	5600 mg/kg (rat)	15800 mg/kg (rabbit)
Ethyl acetate	10600 ppm (mouse) (4-hour exposure)	10200 ppm (female rat)	> 18000 ppm (rabbit)

Skin Corrosion/Irritation

Animal tests show very mild irritation.

Serious Eye Damage/Irritation

Animal tests show serious eye irritation. The vapour also irritates the eyes.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

At high concentrations nose and throat irritation, depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Skin Absorption

Not harmful based on human experience and animal tests.

Ingestion

Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Aspiration Hazard

May be drawn into the lungs (aspirated) if swallowed or vomited.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Long term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis. Long term exposure to methanol has been associated with headaches, giddiness, conjunctivitis, insomnia and impaired vision. Ethyl acetate is of relatively low toxicity.

Respiratory and/or Skin Sensitization

Not a skin sensitizer. Not known to be a respiratory sensitizer.

Carcinogenicity

Conclusions cannot be drawn from the limited studies available. If swallowed: ACGIH®: A3 – Confirmed animal carcinogen.

Reproductive Toxicity

Development of Offspring

Conclusions cannot be drawn from the limited studies available.

Sexual Function and Fertility

Conclusions cannot be drawn from the limited studies available.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

Repeated exposure to ethanol may exacerbate liver injury from other causes.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No information was located.

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Ethanol	> 13400 mg/L (Pimephales promelas (fathead minnow); 96-hour)			
Methanol	15400-29400 mg/L (96-hour)	> 10000 mg/L (Daphnia magna (water flea); 48-hour)		22000 mg/L (Selenastrum capricornutum (algae); 72-hour)
Ethyl acetate	230 mg/L (Pimephales promelas (fathead minnow); 96-hour)	165 mg/L (Daphnia magna (water flea); 48-hour)	5600 mg/L (48-hour)	

Persistence and Degradability

Degrades rapidly based on half-life measurements.

Bioaccumulative Potential

This product and its degradation products are not expected to bioaccumulate based on the fish bioconcentration factor (BCF).

Mobility in Soil

If released into the environment, this product can move rapidly through the soil.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Recycle and reuse product, if possible. Bury in a licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations. Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	1987	ALCOHOLS, N.O.S. (Ethanol)	3	II
IMO (Marine)	1987	ALCOHOLS, N.O.S. (ETHANOL, METHANOL, ETHYL ACETATE)	3	II
IATA (Air)	1987	ALCOHOLS, N.O.S. (ETHANOL, METHANOL, ETHYL ACETATE)	3	II

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

CEPA - National Pollutant Release Inventory (NPRI)

(Ethanol) Part 5. (Methanol) Part 1A, Part 5. (Ethyl acetate) Part 5.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

SDS Prepared By Caledon Laboratories Ltd

Date of Preparation July 27, 2016

Date of Last Revision February 20, 2018

Revision Indicators The following SDS content was changed on February 20, 2018:
SECTION 14. TRANSPORT INFORMATION; Shipping Information.

References CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). Supplier Safety Data Sheets.

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