SAFETY DATA SHEET

Version 8.15
Revision Date 14.08.2025
Print Date 17.08.2025

Section 1: Identification

1.1 Product identifiers

Product name : Ethanol absolute for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Product Number : 100983
Brand : Millipore
CAS-No. : 64-17-5

1.2 Other means of identification

No data available

1.3 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Reagent for analysis, Chemical production

1.4 Details of the supplier of the safety data sheet

Company : Merck Life Science Ltd
Level 26 PwC Tower, 15 Customs Street West
1010 AUCKLAND
NEW ZEALAND

Telephone : 0800 936 666
E-mail address : customersupport.anz@merckgroup.com

1.5 Emergency telephone number

Emergency Phone # : 0800 425 459 (CHEMTREC NZ)
+64 9 801 0034 (Int'l CHEMTREC)

Section 2: Hazard identification

GHS Classification

Flammable liquids : Category 2

Serious eye damage/eye irritation : Category 2

GHS label elements

The life science business of Merck operates as MilliporeSigma in the US and Canada

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Other hazards which do not result in classification

None known.

Section 3: Composition/information on ingredients

Substance / Mixture : Substance

Components

Chemical name	CAS-No.	Concentration (% w/w)
ethanol	64-17-5	>= 90 -<= 100

Section 4: First-aid measures

General advice : Show this safety data sheet to the doctor in attendance.

If inhaled : After inhalation: fresh air.

In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact : After eye contact: rinse out with plenty of water.
Call in ophthalmologist.
Remove contact lenses.

If swallowed : After swallowing: immediately make victim drink wa-

The life science business of Merck operates as MilliporeSigma in the US and Canada

		ter (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	:	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	:	For personal protection see section 8.
Notes to physician	:	No data available

Section 5: Fire-fighting measures

Suitable extinguishing media	:	Water Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.
Hazardous combustion products	:	Carbon oxides
Specific extinguishing methods	:	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.
Hazchem Code	:	2YE

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

Section 7: Handling and storage

For precautions see section 2.2.

Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Hygiene measures	:	Change contaminated clothing. Wash hands after working with substance.
Further information on storage conditions	:	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.
Storage class	:	3, Flammable liquids
Recommended storage temperature	:	Recommended storage temperature see product label.
Further information on storage stability	:	Recommended storage temperature see product label.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Section 8: Exposure controls/personal protection

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ethanol	64-17-5	WES-TWA	1,000 ppm 1,880 mg/m3	NZ OEL
		STEL	1,000 ppm	ACGIH

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material	:	butyl-rubber
Break through time	:	480 min
Glove thickness	:	0.7 mm
Protective index	:	Full contact
Manufacturer	:	Butoject® (KCL 898)
Material	:	Nitrile rubber
Break through time	:	120 min
Glove thickness	:	0.4 mm
Protective index	:	Splash contact
Manufacturer	:	Camatril® (KCL 730 / Aldrich Z677442, Size M)
Remarks	:	This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

The life science business of Merck operates as MilliporeSigma in the US and Canada

Eye protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin and body protection	:	Flame retardant antistatic protective clothing.

Section 9: Physical and chemical properties

Appearance	:	liquid
Color	:	colourless
Odor	:	alcohol-like
Odor Threshold	:	0.1 ppm
pH	:	7.0 (20 °C) Concentration: 10 g/l
Melting point/freezing point	:	-114.0 °C (1,013.25 hPa)
Boiling point	:	78.29 °C (1,013 hPa)
Flash point	:	13 °C Method: closed cup, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available
Burning rate	:	No data available
Self-ignition	:	363 °C 1,013 hPa
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 27.7 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 3.1 %(V)

The life science business of Merck operates as MilliporeSigma in the US and Canada

Vapor pressure	:	57.26 hPa (19.6 °C)
Relative vapour density	:	1.6
Relative density	:	No data available
Density	:	0.79 g/cm3 (20 °C)
Solubility(ies) Water solubility	: :	 1,000 g/l completely miscible (20 °C)
Partition coefficient: n-octanol/water	:	log Pow: -0.35 (24 °C) pH: 7.4 Method: OECD Test Guideline 107 Bioaccumulation is not expected.
Autoignition temperature	:	363 °C (1,013 hPa)
Decomposition temperature	:	Distillable in an undecomposed state at normal pressure.
Viscosity Viscosity, dynamic	: :	 1.2 mPa.s (20 °C)
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	none
Surface tension	:	22.31 mN/m, 20 °C, similar to water
Conductivity	:	< 1 µS/cm
Molecular weight	:	46.07 g/mol
Particle characteristics Particle size	: :	 No data available

Section 10: Stability and reactivity

Reactivity	:	Vapours may form explosive mixture with air.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous	:	Risk of explosion/exothermic reaction with:

The life science business of Merck operates as MilliporeSigma in the US and Canada

reactions		hydrogen peroxide perchlorates perchloric acid Nitric acid mercury(II) nitrate permanganic acid Nitriles peroxi compounds Strong oxidizing agents nitrosyl compounds Peroxides sodium Potassium halogen oxides calcium hypochlorite nitrogen dioxide metallic oxides uranium hexafluoride iodides Chlorine Alkali metals Alkaline earth metals alkali oxides Ethylene oxide silver with Nitric acid silver compounds with Ammonia potassium permanganate with conc. sulfuric acid Risk of ignition or formation of inflammable gases or vapours with: halogen-halogen compounds chromium(VI) oxide chromyl chloride Fluorine hydrides Oxides of phosphorus platinum Nitric acid with potassium permanganate
Conditions to avoid	:	Warming.
Incompatible materials	:	No data available
Hazardous decomposition products	:	In the event of fire: see section 5

The life science business of Merck operates as MilliporeSigma in the US and Canada

Section 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 10,470 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - 124.7 mg/l - vapour

(OECD Test Guideline 403)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: Methanol

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: dominant lethal test
Species: Mouse

Application Route: Oral
Method: OECD Test Guideline 478
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

The life science business of Merck operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - No observed adverse effect level - 1,730 mg/kg - Lowest observed adverse effect level - 3,200 mg/kg

irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological information

Ecotoxicity

Components:

ethanol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 15,300 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Ceriodaphnia dubia (water flea)): 5,012 mg/l End point: mortality Exposure time: 48 h Test Type: static test Remarks: (ECHA)
Toxicity to algae/aquatic plants	:	ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): 250 mg/l Exposure time: 120 h Test Type: semi-static test Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 9.6 mg/l End point: reproduction rate Exposure time: 9 d

The life science business of Merck operates as MilliporeSigma in the US and Canada

Test Type: semi-static test
Remarks: (ECHA)

Toxicity to microorganisms	:	IC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 209 The value is given in analogy to the following substances: Methanol

Persistence and degradability

Components:

ethanol:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Result: Readily biodegradable. Biodegradation: ca. 95 % Exposure time: 15 d Method: OECD Test Guideline 301E
Biochemical Oxygen Demand (BOD)	:	930 - 1,670 mg/g Incubation time: 5 d Remarks: (Lit.)
ThOD	:	2,100 mg/g Remarks: (Lit.)

Bioaccumulative potential

Components:

ethanol:

Bioaccumulation	:	Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.
Partition coefficient: n-octanol/water	:	log Pow: -0.35 (24 °C) pH: 7.4 Method: OECD Test Guideline 107 Remarks: Bioaccumulation is not expected.

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information	:	No interference with wastewater treatment plants are to be expected when used properly.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Discharge into the environment must be avoided.

Components:

ethanol:

Results of PBT and vPvB assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Section 13: Disposal considerations

Disposal methods

Waste from residues	:	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Section 14: Transport information

International Regulations

IATA-DGR

UN/ID No.	:	UN 1170
Proper shipping name	:	Ethanol
Class	:	3
Packing group	:	II
Labels	:	Class 3 - Flammable liquids
Packing instruction (cargo aircraft)	:	364
Packing instruction (passenger aircraft)	:	353

IMDG-Code

UN number	:	UN 1170
Proper shipping name	:	ETHANOL
Class	:	3
Packing group	:	II
Labels	:	3
EmS Code	:	F-E, S-D
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

NZS 5433

UN number	:	UN 1170

The life science business of Merck operates as MilliporeSigma in the US and Canada

Proper shipping name	:	ETHANOL
Class	:	3
Packing group	:	II
Labels	:	3
Hazchem Code	:	2YE
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Section 15: Regulatory information

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

HSNO Approval Number

HSR001144 Ethanol

Tolerable Exposure Limits (TEL)

Not applicable

Environmental Exposure Limits (EEL)

Not applicable

HSW Controls

Certified handler certificate not required.
Tracking hazardous substance not required.
Refer to the Health and Safety at Work (Hazardous Substances) Regulations 2017, for further information.

Section 16: Other information

Revision Date	:	14.08.2025

Further information

Other information	:	The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2025 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use

The life science business of Merck operates as MilliporeSigma in the US and Canada

only.

Date format	:	dd.mm.yyyy

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NZ OEL	:	New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
ACGIH / STEL	:	Short-term exposure limit
NZ OEL / WES-TWA	:	Workplace Exposure Standard - Time Weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the

The life science business of Merck operates as MilliporeSigma in the US and Canada

information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

NZ / EN

The life science business of Merck operates as MilliporeSigma in the US and Canada