

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 05/21/2010

1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Ethanol, anhydrous, denatured

Stock number: 22930

CAS Number:

64-17-5

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

Sector of Use SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Hazards identification

Classification of the substance or mixture



GHS02 Flame

H225 Highly flammable liquid and vapour.



GHS08 Health hazard

H371 May cause damage to organs.



GHS07

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



Xn; Harmful

R20/21/22-68/20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.



F; Highly flammable

R11: Highly flammable.

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:

Xn Harmful

F Highly flammable

Risk phrases:

11 Highly flammable.

20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

68/20/21/22 Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

Safety phrases:

7 Keep container tightly closed.

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16 Keep away from sources of ignition - No smoking.
36/37 Wear suitable protective clothing and gloves.

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Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	3	Flammability = 3
REACTIVITY	1	Reactivity = 1

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**3 Composition/information on ingredients****Chemical characterization: Substances****(CAS#) Description:**

Ethanol (CAS# 64-17-5): 90%

Methanol (CAS# 67-56-1): 5%

2-Propanol (CAS# 67-63-0): 5%

4 First aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

Information for doctor**Most important symptoms and effects, both acute and delayed**

Nausea

Headache

Gastric or intestinal disorders.

Dizziness

Unconsciousness

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

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Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

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6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Conditions for safe storage, including any incompatibilities**Storage****Requirements to be met by storerooms and receptacles:** Store in a cool location.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from water/moisture.

Further information about storage conditions:

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters**Components with limit values that require monitoring at the workplace:**

Ethyl alcohol

	ppm
ACGIH TLV humans.	1000-STEL; Confirmed animal carcinogen with unknown relevance to humans.
Austria MAK	1000
Belgium TWA	1000
Denmark TWA	1000
Finland TWA	1000; 1250-STEL
France VME	1000; 5000-VLE
Germany MAK	1000

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Korea TLV	1000
Netherlands MAC-TGG	500
Norway TWA	500
Poland TWA	1000 mg/m ³ ; 3000 mg/m ³ -STEL
Russia	1000 mg/m ³ -STEL
Sweden NGV	500; 1000-KTV
Switzerland MAK-W	1000
United Kingdom TWA	1000
OSHA PEL	1000

Methyl alcohol

ppm

ACGIH TLV	200; 250-STEL (skin)
Austria MAK	200 (skin)
Belgium TWA	200; 250-STEL, (skin)
Denmark TWA	200 (skin)
Finland TWA	200; 250-STEL (skin)
France VME	200; 1000-VLE
Hungary TWA	50 mg/m ³ ; 100 mg/m ³ -STEL (skin)
Japan OEL	200 (skin)
Korea TLV	200; 250-STEL (skin)
Netherlands MAC-TGG	200 (skin)
Norway TWA	100
Poland TWA	100 mg/m ³ ; 300 mg/m ³ -STEL
Russia TWA	200; 5 mg/m ³ -STEL (skin)
Sweden NGV	200; 250-KTV (skin)
United Kingdom TWA	200; 250-STEL (skin)
OSHA PEL	200

Isopropyl alcohol (2-Propanol)

ppm

ACGIH TLV	400; 500-STEL
Austria MAK	400
Belgium TWA	400; 500-STEL
Denmark TWA	200
France VLE	400
Germany MAK	400
Ireland TWA	400; 500-STEL (skin)
Japan TWA	400-STEL
Korea TWA	400; 500-STEL
Netherlands MAC-TGG	400 (skin)
Norway TWA	100
Poland TWA	900; 1200-STEL
Russia TWA	400-STEL
Sweden NGV	150; 250-STEL
Switzerland MAK-W	400
United Kingdom TWA	400; 500-STEL
OSHA PEL	400

Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.

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9 Physical and chemical properties

Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Liquid
Color:	Colorless
Odor:	Alcohol-like
Odour threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	-130°C (-202 °F)
Boiling point/Boiling range:	78°C (172 °F)
Sublimation temperature / start:	Not determined
Flash point:	8°C (46 °F)
Flammability (solid, gaseous)	Not applicable.
Ignition temperature:	362°C (684 °F)
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Explosion limits:	
Lower:	3.3 Vol %
Upper:	19 Vol %
Vapor pressure at 20°C (68 °F):	58.5 hPa (44 mm Hg)
Density at 20°C (68 °F):	0.7893 g/cm ³ (6.587 lbs/gal)
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible
Alcohols:	Soluble
Segregation coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts with oxidizing agents

Incompatible materials:

Oxidizing agents

Halogens

Acid chlorides

Acid anhydrides

Alkali metals

Water/moisture

Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

ORL-RAT LD50: 7060 MG/KG (ETHANOL)

ORL-MUS LD50: 3450 MG/KG (ETHANOL)

IHL-RAT LC50: 20000 PPM/10H (ETHANOL)

ORL-RAT LD50: 5628 MG/KG (METHANOL)

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ORL-MUS LD50: 7300 MG/KG (METHANOL)
SKN-RBT LD50: 15800 MG/KG (METHANOL)
ORL-HMN LDLo: 143 MG/KG (METHANOL)
ORL-RAT LD50: 5045 MG/KG (ISOPROPANOL)
ORL-MUS LD50: 3600 MG/KG (ISOPROPANOL)
SKN-RBT LD50: 12800 MG/KG (ISOPROPANOL)
ORL-HMN LD50: 3570 MG/KG (ISOPROPANOL)

Primary irritant effect:**on the skin:** No irritant effect.**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

2-Propanol (isopropyl alcohol) may act as a local irritant and in high concentrations as a narcotic with symptoms such as headache, nausea, dizziness, vomiting, mental depression, anesthesia, and coma. Similar symptoms may be caused by ingestion. It can cause corneal burns on contact with the eyes and has caused teratogenic, mutagenic and reproductive effects in laboratory animals.

Symptoms of methanol overexposure may include intoxication, headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma and death. It is a defatting agent and can cause skin and eye irritation. Absorption through the skin is possible. Chronic exposure may cause liver and eye injury.

Ethyl alcohol is rapidly oxidized in the body and is less toxic than methyl alcohol.

Exposure to high vapor concentrations may cause upper respiratory tract irritation and eye irritation. It is a central nervous system depressant and ingestion leads to drowsiness, lassitude, loss of appetite and inability to concentrate. Mutagenic and teratogenic data have been reported.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-3: Not classifiable as to carcinogenicity to humans.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information**Toxicity****Acquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.

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14 Transport information**DOT regulations:**

Hazard class: 3
Identification number: UN1170
Packing group: II
Proper shipping name (technical name): ETHANOL SOLUTION
Label: 3

Land transport ADR/RID (cross-border)

ADR/RID class: 3 (F1) Flammable liquids
Danger code (Kemler): 33
UN-Number: 1170
Packaging group: II
UN proper shipping name: 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Maritime transport IMDG:

IMDG Class: 3
UN Number: 1170
Label: 3
Packaging group: II
Marine pollutant: No
Proper shipping name: ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 1170
Label: 3
Packaging group: II
Proper shipping name: ETHANOL SOLUTION

UN "Model Regulation": UN1170, ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II
Special precautions for user Warning: Flammable liquids
 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

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

Product related hazard informations:**Hazard symbols:**

Xn Harmful
 F Highly flammable

Risk phrases:

11 Highly flammable.
 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

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Product name: Ethanol, anhydrous, denatured

68/20/21/22 Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. (Contd. of page 7)

Safety phrases:

- 7 Keep container tightly closed.
16 Keep away from sources of ignition - No smoking.
36/37 Wear suitable protective clothing and gloves.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt
Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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