

Creation Date 24-Nov-2010

Revision Date 16-Mar-2024

Revision Number 6

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Ethanol, denatured
Cat No. : **44014**
Synonyms Alcohol; Ethyl alcohol
Molecular Formula C₂ H₆ O

Unique Formula Identifier (UFI) **HA7W-K2JF-MX02-RN32**

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company
 Avocado Research Chemicals Ltd.
 (Part of Thermo Fisher Scientific)
 Shore Road, Heysham
 Lancashire, LA3 2XY,
 United Kingdom
 Office Tel: +44 (0) 1524 850506
 Office Fax: +44 (0) 1524 850608

E-mail address begel.sdsdesk@thermofisher.com

1.4. 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

Poison Centre - Emergency information services
Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Flammable liquids

Category 2 (H225)

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

Health hazards

Acute oral toxicity
Acute Inhalation Toxicity - Vapors
Serious Eye Damage/Eye Irritation
Specific target organ toxicity - (single exposure)

Category 4 (H302)
Category 4 (H332)
Category 2 (H319)
Category 2 (H371)

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapor
H319 - Causes serious eye irritation
H371 - May cause damage to organs
H302 + H332 - Harmful if swallowed or if inhaled

Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P312 - Call a POISON CENTER or doctor if you feel unwell
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Other hazards

No information available
This product does not contain any known or suspected endocrine disruptors
Toxic to terrestrial vertebrates

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

| Component | CAS No | EC No | Weight % | CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567 |
|---------------|---------|-----------|----------|---|
| Ethyl alcohol | 64-17-5 | 200-578-6 | 90 | Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) |

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

| | | | | |
|-------------------|---------|-----------|---|--|
| Methyl alcohol | 67-56-1 | 200-659-6 | 5 | Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370) |
| Isopropyl alcohol | 67-63-0 | 200-661-7 | 5 | Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H336) |

| Component | Specific concentration limits (SCL's) | M-Factor | Component notes |
|----------------|---|----------|-----------------|
| Ethyl alcohol | Eye Irrit. 2 :: C>=50% | - | - |
| Methyl alcohol | STOT Single Exp. 1 :: >= 10 STOT Single Exp. 2 :: 3 - < 10 | - | - |

| Components | Reach Registration Number |
|-------------|---------------------------|
| Ethanol | 01-2119457610-43-0593 |
| Methanol | 01-2119433307-44-0232 |
| Propan-2-ol | 01-2119457558-25-0106 |

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|---|--|
| General Advice | If symptoms persist, call a physician. |
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| Self-Protection of the First Aider | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. |

4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry chemical. Chemical foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

5.2. Special hazards arising from the substance or mixture

Flammable. 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.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open 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.

Hygiene Measures

When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510 Class 3
Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

| Component | The United Kingdom | European Union | Ireland |
|-------------------|---|--|--|
| Ethyl alcohol | TWA: 1000 ppm TWA; 1920 mg/m ³ TWA WEL - STEL: 3000 ppm STEL; 5760 mg/m ³ STEL | | STEL: 1000 ppm 15 min |
| Methyl alcohol | WEL - TWA: 200 ppm TWA; 266 mg/m ³ TWA WEL - STEL: 250 ppm STEL; 333 mg/m ³ STEL | TWA: 200 ppm 8 hr TWA: 260 mg/m ³ 8 hr Skin | TWA: 200 ppm 8 hr. TWA: 260 mg/m ³ 8 hr. STEL: 600 ppm 15 min STEL: 780 mg/m ³ 15 min Skin |
| Isopropyl alcohol | STEL: 500 ppm 15 min STEL: 1250 mg/m ³ 15 min TWA: 400 ppm 8 hr TWA: 999 mg/m ³ 8 hr | | TWA: 200 ppm 8 hr. STEL: 400 ppm 15 min Skin |

Biological limit values

List source(s):

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

| Component | Acute effects local (Oral) | Acute effects systemic (Oral) | Chronic effects local (Oral) | Chronic effects systemic (Oral) |
|---------------------------------|----------------------------|-------------------------------|------------------------------|---------------------------------|
| Ethyl alcohol 64-17-5 (90) | | DNEL = 87 mg/kg bw/d | | |

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|------------------------------------|------------------------------|---------------------------------|--------------------------------|-----------------------------------|
| Ethyl alcohol 64-17-5 (90) | | | | DNEL = 343mg/kg bw/day |
| Methyl alcohol 67-56-1 (5) | | DNEL = 20mg/kg bw/day | | DNEL = 20mg/kg bw/day |
| Isopropyl alcohol 67-63-0 (5) | | | | DNEL = 888mg/kg bw/day |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|------------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------------------|
| Ethyl alcohol 64-17-5 (90) | DNEL = 1900mg/m ³ | | | DNEL = 950mg/m ³ |
| Methyl alcohol 67-56-1 (5) | DNEL = 130mg/m ³ | DNEL = 130mg/m ³ | DNEL = 130mg/m ³ | DNEL = 130mg/m ³ |
| Isopropyl alcohol 67-63-0 (5) | | | | DNEL = 500mg/m ³ |

Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|---------------------------------|------------------|----------------------------|--------------------|------------------------------------|-------------------------|
| Methyl alcohol 67-56-1 (5) | PNEC = 20.8mg/L | PNEC = 77mg/kg sediment dw | PNEC = 1540mg/L | PNEC = 100mg/L | PNEC = 100mg/kg soil dw |
| Isopropyl alcohol | PNEC = 140.9mg/L | PNEC = 552mg/kg | PNEC = 140.9mg/L | PNEC = 2251mg/L | PNEC = 28mg/kg |

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

| | | | |
|---------------|--|-------------|---------|
| 67-63-0 (5) | | sediment dw | soil dw |
|---------------|--|-------------|---------|

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|------------------------------------|------------------|--------------------------------|---------------------------|-------------------------|-----|
| Methyl alcohol 67-56-1 (5) | PNEC = 2.08mg/L | PNEC = 7.7mg/kg sediment dw | | | |
| Isopropyl alcohol 67-63-0 (5) | PNEC = 140.9mg/L | PNEC = 552mg/kg sediment dw | | PNEC = 160mg/kg food | |

8.2. Exposure controls

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 (European standard - EN 166)

Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Butyl rubber | > 480 minutes | > 0.3 mm | EN 374 | (minimum requirement) |
| Neoprene | > 480 minutes | | | |
| Viton (R) | > 480 minutes | | | |
| Nitrile rubber | < 60 minutes | | | |

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, 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.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

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

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

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

| | | |
|--|---|--|
| Physical State | Liquid | |
| Appearance | Colorless | |
| Odor | No information available | |
| Odor Threshold | No data available | |
| Melting Point/Range | -114 °C / -173.2 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 78 °C / 172.4 °F | @ 760 mmHg |
| Flammability (liquid) | Highly flammable | On basis of test data |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | Lower 4 vol% Upper 19 vol% | |
| Flash Point | 12 °C / 53.6 °F | Method - No information available |
| Autoignition Temperature | 370 °C / 698 °F | |
| Decomposition Temperature | No data available | |
| pH | Not applicable | |
| Viscosity | 1.2 mPa.s at 20 °C | |
| Water Solubility | Miscible | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow | |
| Ethyl alcohol | -0.32 | |
| Methyl alcohol | -0.74 | |
| Isopropyl alcohol | 0.05 | |
| Vapor Pressure | 59 mbar @ 20 °C | |
| Density / Specific Gravity | 0.780 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 1.59 | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |

9.2. Other information

| | |
|-----------------------------|---|
| Molecular Formula | C2 H6 O |
| Molecular Weight | 46.06 |
| Explosive Properties | Vapors may form explosive mixtures with air |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

| | |
|---------------------------------|--|
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

10.5. Incompatible materials

Acids. Ammonia. Peroxides. Acid anhydrides. Acid chlorides. Metals. Reducing Agent.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

| | |
|-------------------|--|
| Oral | Category 4 |
| Dermal | Based on available data, the classification criteria are not met |
| Inhalation | Category 4 |

Toxicology data for the components

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------|--|-------------------------------|---|
| Ethyl alcohol | LD50 = 10470 mg/kg OECD 401 (Rat) 3450 mg/kg (Mouse) | - | LC50 = 117-125 mg/l (4h) OECD 403 (rat) 20000 ppm/10H (rat) |
| Methyl alcohol | LD50 = 1187 – 2769 mg/kg (Rat) | LD50 = 17100 mg/kg (Rabbit) | LC50 = 128.2 mg/L (Rat) 4 h |
| Isopropyl alcohol | 5045 mg/kg (Rat) 3600 mg/kg (Mouse) | 12800 mg/kg (Rat) | 72.6 mg/L (Rat) 4 h |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

| | |
|--------------------|-------------------|
| Respiratory | No data available |
| Skin | No data available |

| Component | Test method | Test species | Study result |
|---------------------------------|--|--------------|-----------------|
| Ethyl alcohol 64-17-5 (90) | Mouse Ear Swelling Test (MEST) | mouse | non-sensitising |
| | ----- OECD Test Guideline 429 Local Lymph Node Assay | mouse | non-sensitising |
| Methyl alcohol 67-56-1 (5) | OECD Test Guideline 406 Guinea Pig Maximisation Test (GPMT) | guinea pig | non-sensitising |

(e) germ cell mutagenicity; No data available

| Component | Test method | Test species | Study result |
|---------------------------------|--|-----------------------|--------------|
| Ethyl alcohol 64-17-5 (90) | AMES test OECD Test Guideline 471 | in vitro Bacteria | negative |
| | ----- Gene cell mutation OECD Test Guideline 476 | in vitro Mammalian | negative |

(f) carcinogenicity; No data available

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

(g) reproductive toxicity; No data available

| Component | Test method | Test species / Duration | Study result |
|---------------------------------|----------------------------------|----------------------------------|---------------------------|
| Ethyl alcohol 64-17-5 (90) | OECD Test Guideline 416 | Oral / mouse 2 Generation | NOAEL = 13.8 g/kg/day |
| | ----- OECD Test Guideline 414 | Inhalation / Rat | NOAEC = 16000 ppm |
| Methyl alcohol 67-56-1 (5) | OECD Test Guideline 416 | Rat / Inhalation 2 Generation | NOAEC = 1.3 mg/l (air) |

Reproductive Effects California Proposition 65. Reproductive toxicity.

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

(h) STOT-single exposure; Category 2
Results / Target organs Optic nerve, Central nervous system (CNS).

(i) STOT-repeated exposure; No data available
Target Organs None known.

(j) aspiration hazard; No data available

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

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|-------------------|--|---|--|
| Ethyl alcohol | Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h | EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h | EC50 (72h) = 275 mg/l (Chlorella vulgaris) |
| Methyl alcohol | Pimephales promelas: LC50 > 10000 mg/L 96h | EC50 > 10000 mg/L 24h | |
| Isopropyl alcohol | LC50: = 9640 mg/L, 96h flow-through (Pimephales promelas) LC50: > 1400000 µg/L, 96h (Lepomis macrochirus) LC50: = 11130 mg/L, 96h static (Pimephales promelas) LC50: = 10000000 µg/L, 96h (Daphnia) | 13299 mg/L EC50 = 48 h 9714 mg/L EC50 = 24 h | EC50: > 1000 mg/L, 72h (Desmodesmus subspicatus) EC50: > 1000 mg/L, 96h (Desmodesmus subspicatus) |

| Component | Microtox | M-Factor |
|-------------------|---|----------|
| Ethyl alcohol | Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 = 35470 mg/L/5 min | |
| Methyl alcohol | EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min | |
| Isopropyl alcohol | = 35390 mg/L EC50 Photobacterium phosphoreum 5 min | |

12.2. Persistence and degradability Expected to be biodegradable

Persistence Persistence is unlikely, based on information available.

| Component | Degradability |
|-------------------------------|--------------------------------|
| Ethyl alcohol 64-17-5 (90) | OECD 301E = 94% |
| Methyl alcohol 67-56-1 (5) | DT50 ~ 17.2d >94% after 20d |

Degradation in sewage Contains substances known to be hazardous to the environment or not degradable in waste

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

treatment plant water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|-------------------|---------|-------------------------------|
| Ethyl alcohol | -0.32 | No data available |
| Methyl alcohol | -0.74 | <10 dimensionless |
| Isopropyl alcohol | 0.05 | No data available |

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.

12.5. Results of PBT and vPvB assessment No data available for assessment.

12.6. Endocrine disrupting properties
Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1987
14.2. UN proper shipping name ALCOHOLS, N.O.S.
Technical Shipping Name Ethanol/Methanol/Isopropanol
14.3. Transport hazard class(es) 3
14.4. Packing group II

ADR

14.1. UN number UN1987

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

14.2. UN proper shipping name ALCOHOLS, N.O.S.
Technical Shipping Name Ethanol/Methanol/Isopropanol
14.3. Transport hazard class(es) 3
14.4. Packing group II

IATA

14.1. UN number UN1987
14.2. UN proper shipping name ALCOHOLS, N.O.S.
Technical Shipping Name Ethanol/Methanol/Isopropanol
14.3. Transport hazard class(es) 3
14.4. Packing group II

14.5. Environmental hazards No hazards identified
14.6. Special precautions for user No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|-------------------|---------|-----------|--------|-----|-------|------|----------|------|------|
| Ethyl alcohol | 64-17-5 | 200-578-6 | - | - | X | X | KE-13217 | X | X |
| Methyl alcohol | 67-56-1 | 200-659-6 | - | - | X | X | KE-23193 | X | X |
| Isopropyl alcohol | 67-63-0 | 200-661-7 | - | - | X | X | KE-29363 | X | X |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|-------------------|---------|------|---|-----|------|------|-------|-------|
| Ethyl alcohol | 64-17-5 | X | ACTIVE | X | - | X | X | X |
| Methyl alcohol | 67-56-1 | X | ACTIVE | X | - | X | X | X |
| Isopropyl alcohol | 67-63-0 | X | ACTIVE | X | - | X | X | X |

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH

| Component | CAS No | 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) |
|-------------------|---------|---|--|---|
| Ethyl alcohol | 64-17-5 | - | - | - |
| Methyl alcohol | 67-56-1 | - | Use restricted. See item 69. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) | - |
| Isopropyl alcohol | 67-63-0 | - | Use restricted. See item 75. (see link for restriction details) | - |

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

REACH links

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

Seveso III Directive (2012/18/EC)

| 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 |
|-------------------|---------|---|--|
| Ethyl alcohol | 64-17-5 | Not applicable | Not applicable |
| Methyl alcohol | 67-56-1 | 500 tonne | 5000 tonne |
| Isopropyl alcohol | 67-63-0 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 2 (self classification)

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|-------------------|---------------------------------------|--|
| Ethyl alcohol | WGK1 | |
| Methyl alcohol | WGK 2 | Class I : 20 mg/m ³ (Massenkonzentration) |
| Isopropyl alcohol | WGK1 | |

| Component | France - INRS (Tables of occupational diseases) |
|-------------------|--|
| Ethyl alcohol | Tableaux des maladies professionnelles (TMP) - RG 84 |
| Methyl alcohol | Tableaux des maladies professionnelles (TMP) - RG 84 |
| Isopropyl alcohol | Tableaux des maladies professionnelles (TMP) - RG 84 |

| Component | Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81) | Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC) | Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure |
|------------------------------------|--|---|---|
| Ethyl alcohol 64-17-5 (90) | | Group I | |
| Methyl alcohol 67-56-1 (5) | Prohibited and Restricted Substances | Group I | |
| Isopropyl alcohol 67-63-0 (5) | | Group I | |

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H332 - Harmful if inhaled
H319 - Causes serious eye irritation
H371 - May cause damage to organs
H225 - Highly flammable liquid and vapor
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H336 - May cause drowsiness or dizziness
H370 - Causes damage to organs

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards On basis of test data

Health Hazards Calculation method

Environmental hazards Calculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Prepared By Health, Safety and Environmental Department

Creation Date 24-Nov-2010

Revision Date 16-Mar-2024

Revision Summary New emergency telephone response service provider.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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

SAFETY DATA SHEET

Ethanol, denatured

Revision Date 16-Mar-2024

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 Safety Data Sheet