

Creation Date 20-Jan-2010

Revision Date 06-Oct-2023

Revision Number 11

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

1.1. Product identifier

| | |
|---------------------------|---|
| Product Description: | Chloroform, stabilized with ethanol |
| Cat No. : | 404630000; 404635000 |
| Synonyms | Formyl trichloride; Methane trichloride; Methenyl trichloride |
| Index No | 602-006-00-4 |
| CAS No | 67-66-3 |
| EC No | 200-663-8 |
| Molecular Formula | C H Cl ₃ |
| REACH registration number | 01-2119486657-20 |

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

| | |
|----------------------|-----------------------|
| Recommended Use | Laboratory chemicals. |
| Uses advised against | All other uses |

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road,
Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium

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

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

Based on available data, the classification criteria are not met

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Health hazards

| | |
|--|--------------------|
| Acute oral toxicity | Category 4 (H302) |
| Acute Inhalation Toxicity - Vapors | Category 3 (H331) |
| Skin Corrosion/Irritation | Category 2 (H315) |
| Serious Eye Damage/Eye Irritation | Category 2 (H319) |
| Carcinogenicity | Category 2 (H351) |
| Reproductive Toxicity | Category 2 (H361d) |
| Specific target organ toxicity - (single exposure) | Category 3 (H336) |
| Specific target organ toxicity - (repeated exposure) | Category 1 (H372) |

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

H302 - Harmful if swallowed
H331 - Toxic if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H336 - May cause drowsiness or dizziness
H372 - Causes damage to organs through prolonged or repeated exposure in contact with skin

Precautionary Statements

P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P311 - Call a POISON CENTER or doctor/physician
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Additional EU labelling

For use in industrial installations only

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)
Cardiac and respiratory depression
Overexposure may cause decreased heart rate, decreased blood pressure, heart block, and cardiac failure
Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| 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 | <0.8 | Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) |
| Chloroform | 67-66-3 | 200-663-8 | >99 | Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H336) Carc. 2 (H351) Repr. 2 (H361d) STOT RE 1 (H372) |

| Component | Specific concentration limits (SCL's) | M-Factor | Component notes |
|---------------|---------------------------------------|----------|-----------------|
| Ethyl alcohol | Eye Irrit. 2 :: C ≥ 50% | - | - |
| Chloroform | STOT RE 2 : C ≥ 5 % | - | - |

| | |
|---------------------------|------------------|
| REACH registration number | 01-2119486657-20 |
|---------------------------|------------------|

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of 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. |
| Ingestion | Do NOT induce vomiting. Call a physician or poison control center immediately. |
| 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. |
| Self-Protection of the First Aider | Use personal protective equipment as required. |

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

. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: May cause decreases in blood pressure and other cardiac effects: Symptoms may be delayed

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

| | |
|--------------------|---|
| Notes to Physician | Treat symptomatically. Signs of overdose include stupor and respiratory depression. |
|--------------------|---|

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Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Phosgene, Hydrogen chloride gas.

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. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

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. 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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Store under an inert

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atmosphere. Protect from moisture.

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

Class 6.1C

7.3. Specific end use(s)

Use in laboratories

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 |
| Chloroform | TWA: 2 ppm TWA: 9.9 mg/m ³ STEL: 6 ppm STEL: 29.7 mg/m ³ | TWA: 2 ppm 8 hr TWA: 10 mg/m ³ 8 hr Possibility of significant uptake through the skin | TWA: 2 ppm 8 hr. TWA: 9.8 mg/m ³ 8 hr. STEL: 6 ppm 15 min STEL: 29.4 mg/m ³ 15 min Skin |

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

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 (<0.8) | | 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 (<0.8) | | | | DNEL = 343mg/kg bw/day |
| Chloroform 67-66-3 (>99) | | | | DNEL = 0.94mg/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 (<0.8) | DNEL = 1900mg/m ³ | | | DNEL = 950mg/m ³ |
| Chloroform 67-66-3 (>99) | | DNEL = 333mg/m ³ | DNEL = 2.5mg/m ³ | DNEL = 2.5mg/m ³ |

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Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|-------------------------------|------------------|---------------------------------|--------------------|------------------------------------|-----------------------------|
| Chloroform 67-66-3 (>99) | PNEC = 0.146mg/L | PNEC = 0.45mg/kg sediment dw | PNEC = 0.133mg/L | PNEC = 0.048mg/L | PNEC = 0.56mg/kg soil dw |

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|-------------------------------|------------------|---------------------------------|---------------------------|------------|-----|
| Chloroform 67-66-3 (>99) | PNEC = 0.015mg/L | PNEC = 0.09mg/kg sediment dw | | | |

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. 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 |
|----------------|-------------------|-----------------|-------------------|--|
| Viton (R) | > 480 minutes | 0.30 mm | Level 6 EN 374 | As tested under EN374-3 Determination of Resistance to Permeation by Chemicals |
| Neoprene | < 25 minutes | 0.45 mm | | |
| Butyl rubber | < 15 minutes | 0.35 mm | | |

Skin and body protection

Long sleeved clothing.

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 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.

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: low boiling organic solvent Type AX Brown conforming to EN371

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.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | |
|---|----------------------------|-----------------------------------|
| Physical State | Liquid | |
| Appearance | Colorless | |
| Odor | aromatic Slight sweet | |
| Odor Threshold | No data available | |
| Melting Point/Range | -63 °C / -81.4 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 61 °C / 141.8 142.7 °F | |
| Flammability (liquid) | No data available | |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | No data available | |
| Flash Point | No information available | Method - No information available |
| Autoignition Temperature | No data available | |
| Decomposition Temperature | No data available | |
| pH | No information available | |
| Viscosity | 0.56 mPa.s @ 20 °C | |
| Water Solubility | 8 g/L (20°C) | |
| Solubility in other solvents | Miscible; organic solvents | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow | |
| Ethyl alcohol | -0.32 | |
| Chloroform | 2 | |
| Vapor Pressure | 213 mbar @ 20 °C | |
| Density / Specific Gravity | 1.480 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 4.12 (Air = 1.0) | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |

9.2. Other information

| | |
|-------------------|----------------------------|
| Molecular Formula | C H Cl3 |
| Molecular Weight | 119.38 |
| Evaporation Rate | 11.6 (Butyl Acetate = 1.0) |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR. Light sensitive.

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture.

10.5. Incompatible materials

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Strong oxidizing agents. Alkali metals. Aluminium. Acetone.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

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 3

| 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) |
| Chloroform | LD50 = 908 mg/kg (rat) LD50 = 695 mg/kg (Rat) LD50 = 450 mg/kg (Rat) | LD50 > 20 g/kg (Rabbit) | LC50 = 10.5 mg/L (Rat) 4 h |

(b) skin corrosion/irritation;

Category 2

(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 (<0.8) | Mouse Ear Swelling Test (MEST) | mouse | non-sensitising |
| | OECD Test Guideline 429 Local Lymph Node Assay | mouse | non-sensitising |

(e) germ cell mutagenicity;

No data available

| Component | Test method | Test species | Study result |
|-----------------------------------|---|-----------------------|--------------|
| Ethyl alcohol 64-17-5 (<0.8) | AMES test OECD Test Guideline 471 | in vitro Bacteria | negative |
| | Gene cell mutation OECD Test Guideline 476 | in vitro Mammalian | negative |

(f) carcinogenicity;

Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen
Limited evidence of a carcinogenic effect Ethanol has been shown to be carcinogenic in long-term studies only when consumed and abused as an alcoholic beverage.

| Component | EU | UK | Germany | IARC |
|------------|----|----|---------|----------|
| Chloroform | | | | Group 2B |

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| (g) reproductive toxicity; | | Category 2 | |
|-----------------------------------|-------------------------|------------------------------|-----------------------|
| Component | Test method | Test species / Duration | Study result |
| Ethyl alcohol 64-17-5 (<0.8) | OECD Test Guideline 416 | Oral / mouse 2 Generation | NOAEL = 13.8 g/kg/day |
| | OECD Test Guideline 414 | Inhalation / Rat | NOAEC = 16000 ppm |

Reproductive Effects

SUSPECT REPRODUCTIVE HAZARD - CONTAINS MATERIAL WHICH MAY INJURE UNBORN CHILD (CAUSE BIRTH DEFECTS) (BASED ON ANIMAL DATA).

(h) STOT-single exposure;

Category 3

Results / Target organs

Central nervous system (CNS).

(i) STOT-repeated exposure;

Category 1

Study result

LOAEL = 15 mg/kg bw/day

NOAEC = 25 mg/m³

Target Organs

Kidney, Liver, Nasal Cavities.

(j) aspiration hazard;

No data available

Other Adverse Effects

Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed

Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing. May cause decreases in blood pressure and other cardiac effects. Symptoms may be delayed.

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

Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. 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) |
| Chloroform | LC50: = 300 mg/L, 96h static (Poecilia reticulata) LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 18 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 71 mg/L, 96h flow-through (Pimephales promelas) | EC50 = 28.9 mg/L/48h | EC50 = 560 mg/L/48h |

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| Component | Microtox | M-Factor |
|---------------|--|----------|
| Ethyl alcohol | Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 = 35470 mg/L/5 min | |
| Chloroform | Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min | |

12.2. Persistence and degradability

Persistence

Persistence is unlikely, based on information available.

| Component | Degradability |
|-----------------------------------|-----------------|
| Ethyl alcohol 64-17-5 (<0.8) | OECD 301E = 94% |

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|---------------|---------|-------------------------------|
| Ethyl alcohol | -0.32 | No data available |
| Chloroform | 2 | 1.4 - 13 dimensionless |

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

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

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 Ozone Depletion Potential

This product does not contain any known or suspected substance
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.

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. Do not empty into drains.

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SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1888
14.2. UN proper shipping name CHLOROFORM
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

ADR

14.1. UN number UN1888
14.2. UN proper shipping name CHLOROFORM
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

IATA

14.1. UN number UN1888
14.2. UN proper shipping name CHLOROFORM
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

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

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). 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 |
| Chloroform | 67-66-3 | 200-663-8 | - | - | X | X | X | 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 |
| Chloroform | 67-66-3 | 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 | REACH Regulation (EC 1907/2006) article 59 - Candidate List of |
|-----------|--------|---|--|--|
|-----------|--------|---|--|--|

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| | | | Substances | Substances of Very High Concern (SVHC) |
|---------------|---------|---|---|--|
| Ethyl alcohol | 64-17-5 | - | - | - |
| Chloroform | 67-66-3 | - | Use restricted. See item 32. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details) | - |

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 |
| Chloroform | 67-66-3 | 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

| Component | ANNEX I - PART 1 List of chemicals subject to export notification procedure (referred to in Article 8) | ANNEX I - PART 2 List of chemicals qualifying for PIC notification (referred to in Article 11) | ANNEX I - PART 3 List of chemicals subject to the PIC procedure (referred to in Articles 13 and 14) |
|-------------------------------|---|---|--|
| Chloroform 67-66-3 (>99) | b — ban (for the category or categories concerned) b — ban (for the category or categories concerned) i(2) — industrial chemical for public | - | - |

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0649&qid=1604065742303>.

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

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

National Regulations

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

WGK Classification

See table for values

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

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

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| | |
|------------|--|
| Chloroform | Tableaux des maladies professionnelles (TMP) - RG 12 |
|------------|--|

| 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 (<0.8) | | Group I | |
| Chloroform 67-66-3 (>99) | Prohibited and Restricted Substances | | Annex I - industrial chemical |

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

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

H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H332 - Harmful if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H336 - May cause drowsiness or dizziness
H372 - Causes damage to organs through prolonged or repeated exposure in contact with skin

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)

Training Advice

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

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

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

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

Disclaimer

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End of Safety Data Sheet