

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

1.1. Product identifier

Product Form : Mixture
Product Name : CryoStor® CS2, CS5, CS10
Synonyms : CS2, CS5, CS10

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Ultra-low temperature storage of biological material.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Company

BioLife Solutions
3303 Monte Villa Parkway
Suite 310
Bothell, WA 98021
425-402-1400
www.biolifesolutions.com

1.4. Emergency telephone number

Emergency number : 425-402-1400

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification According to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

Other hazards not contributing to the classification : Exposure may aggravate pre-existing eye, skin, or respiratory conditions. This product contains DMSO, DMSO easily penetrates the skin, and may increase the rate of skin absorption of skin-permeable substances.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

| Name | Product identifier | % | Classification According to Regulation (EC) No. 1272/2008 [CLP] |
|-------------------------|--|--------|--|
| Dimethyl sulfoxide | (CAS-No.) 67-68-5 (EC-No.) 200-664-3 | 3 - 11 | Not classified |
| Sucrose | (CAS-No.) 57-50-1 (EC-No.) 200-334-9 | 1 | Not classified |
| Sodium hydroxide** | (CAS-No.) 1310-73-2 (EC-No.) 215-185-5 (EC Index-No.) 011-002-00-6 | 0,6 | Met. Corr. 1, H290 Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314 Eye Dam. 1, H318 |
| Potassium hydroxide** | (CAS-No.) 1310-58-3 (EC-No.) 215-181-3 (EC Index-No.) 019-002-00-8 | 0,168 | Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Eye Dam. 1, H318 |
| Potassium chloride | (CAS-No.) 7447-40-7 (EC-No.) 231-211-8 | 0,1 | Not classified |
| Monopotassium carbonate | (CAS-No.) 298-14-6 (EC-No.) 206-059-0 | 0,1 | Not classified |

Specific concentration limits:

| Name | Product identifier | Specific concentration limits |
|-----------------------|--|--|
| Sodium hydroxide** | (CAS-No.) 1310-73-2 (EC-No.) 215-185-5 (EC Index-No.) 011-002-00-6 | (0,5 =<C < 2) Skin Irrit. 2, H315 (0,5 =<C < 2) Eye Irrit. 2, H319 (2 =<C < 5) Skin Corr. 1B, H314 (C >= 5) Skin Corr. 1A, H314 |
| Potassium hydroxide** | (CAS-No.) 1310-58-3 (EC-No.) 215-181-3 (EC Index-No.) 019-002-00-8 | (0,5 =<C < 2) Skin Irrit. 2, H315 (0,5 =<C < 2) Eye Irrit. 2, H319 (2 =<C < 5) Skin Corr. 1B, H314 (C >= 5) Skin Corr. 1A, H314 |

Full text of H-statements: see section 16

** Components are added to adjust pH, are neutralized, and do not contribute to the overall hazard classification.

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.
- First-aid measures after skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.
- First-aid measures after eye contact : Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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

- Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use. DMSO may enhance the rate of skin absorption of skin-permeable substances.
- Symptoms/effects after inhalation : Prolonged exposure may cause irritation.
- Symptoms/effects after skin contact : Prolonged exposure may cause skin irritation. DMSO may enhance the rate of skin absorption of skin-permeable substances.
- Symptoms/effects after eye contact : May cause slight irritation to eyes.
- Symptoms/effects after ingestion : Ingestion may cause adverse effects.
- Chronic symptoms : None known.

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

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not considered flammable but may burn at high temperatures.
- Explosion hazard : Product is not explosive.
- Reactivity : Hazardous reactions will not occur under normal conditions. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.
- Hazardous decomposition products in case of fire : Irritating or toxic vapours. Carbon oxides (CO, CO₂). Nitrogen oxides. Methylmercaptan. Dimethyl sulfide. Sulphur oxides. Sodium oxides. Hydrogen chloride. Potassium oxides. Phosphorus oxides. Calcium oxides. Magnesium oxides. Formaldehyde. Formaldehyde is a potential carcinogen and can act as a skin and respiratory sensitizer. Formaldehyde can also cause respiratory and eye irritation.

5.3. Advice for firefighters

- Precautionary measures fire : Exercise caution when fighting any chemical fire.
- Firefighting instructions : Use water spray or fog for cooling exposed containers. Remove containers from fire area if this can be done without risk. Do not breathe fumes from fires or vapours from decomposition.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid breathing (vapour, mist, spray). Avoid all contact with skin, eyes, or clothing.

6.1.1. For non-emergency personnel

- Protective equipment : Use appropriate personal protective equipment (PPE).
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.
- Methods for cleaning up : Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : DMSO increases the skin absorption of substances with it, and thereby their toxic effect may be greater than that of the substances alone. Care should be taken if working with DMSO and any other hazardous materials as they may be absorbed more readily by the skin. Contains substances that are combustible dusts. If dried and allowed to accumulate, may form combustible dust concentrations in air that could ignite and cause an explosion. Take appropriate precautions.
- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapours, mist, spray. Use appropriate personal protective equipment (PPE).

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Store in a dry, cool and well-ventilated place. Keep container tightly closed. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible materials : Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Methylbromide, sodium hydride. Halides. Metal salts of oxoacids. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Boron compounds. Maleic anhydride. Water reactive materials.

Storage temperature : 2 - 8 °C

7.3. Specific end use(s)

Ultra-low temperature storage of biological material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Potassium chloride (7447-40-7) | | |
|------------------------------------|--|---|
| Bulgaria | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Latvia | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Lithuania | IPRV (mg/m ³) | 5 mg/m ³ |
| Monopotassium carbonate (298-14-6) | | |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 5 mg/m ³ |
| Sucrose (57-50-1) | | |
| Belgium | Limit value (mg/m ³) | 10 mg/m ³ |
| Bulgaria | OEL TWA (mg/m ³) | 10 mg/m ³ (dust, inhalable fraction) |
| Croatia | GVI (granična vrijednost izloženosti) (mg/m ³) | 10 mg/m ³ |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³) | 20 mg/m ³ |
| France | VME (mg/m ³) | 10 mg/m ³ |
| USA ACGIH | ACGIH TWA (mg/m ³) | 10 mg/m ³ |
| Latvia | OEL TWA (mg/m ³) | 5 mg/m ³ (dust) |
| Spain | VLA-ED (mg/m ³) | 10 mg/m ³ |
| United Kingdom | WEL TWA (mg/m ³) | 10 mg/m ³ |
| United Kingdom | WEL STEL (mg/m ³) | 20 mg/m ³ |
| Estonia | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Ireland | OEL (8 hours ref) (mg/m ³) | 10 mg/m ³ |
| Ireland | OEL (15 min ref) (mg/m ³) | 20 mg/m ³ |
| Lithuania | IPRV (mg/m ³) | 10 mg/m ³ |
| Slovakia | NPHV (priemerná) (mg/m ³) | 6 mg/m ³ (total aerosol) |
| Portugal | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Portugal | OEL chemical category (PT) | A4 - Not Classifiable as a Human Carcinogen |
| Dimethyl sulfoxide (67-68-5) | | |
| Austria | MAK (mg/m ³) | 160 mg/m ³ |
| Austria | MAK (ppm) | 50 ppm |
| Austria | OEL chemical category (AT) | Skin notation |

| Dimethyl sulfoxide (67-68-5) | | |
|-------------------------------------|--|--|
| Germany | TRGS 900 Occupational exposure limit value (mg/m ³) | 160 mg/m ³ (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed) |
| Germany | TRGS 900 Occupational exposure limit value (ppm) | 50 ppm (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed) |
| Germany | TRGS 900 chemical category | Skin notation |
| Switzerland | KZGW (mg/m ³) | 320 mg/m ³ |
| Switzerland | KZGW (ppm) | 100 ppm |
| Switzerland | MAK (mg/m ³) | 160 mg/m ³ |
| Switzerland | MAK (ppm) | 50 ppm |
| Switzerland | OEL chemical category (CH) | Skin notation |
| Denmark | Grænseværdie (langvarig) (mg/m ³) | 160 mg/m ³ |
| Denmark | Grænseværdie (langvarig) (ppm) | 50 ppm |
| Estonia | OEL TWA (mg/m ³) | 150 mg/m ³ |
| Estonia | OEL TWA (ppm) | 50 ppm |
| Estonia | OEL STEL (mg/m ³) | 500 mg/m ³ |
| Estonia | OEL STEL (ppm) | 150 ppm |
| Estonia | OEL chemical category (ET) | Skin notation |
| Finland | HTP-arvo (8h) (ppm) | 50 ppm |
| Finland | OEL chemical category (FI) | Potential for cutaneous absorption |
| Lithuania | IPRV (mg/m ³) | 150 mg/m ³ |
| Lithuania | IPRV (ppm) | 50 ppm |
| Lithuania | TPRV (mg/m ³) | 500 mg/m ³ |
| Lithuania | TPRV (ppm) | 150 ppm |
| Lithuania | OEL chemical category (LT) | Skin notation |
| Slovenia | OEL TWA (mg/m ³) | 160 mg/m ³ |
| Slovenia | OEL chemical category (SL) | Potential for cutaneous absorption |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 150 mg/m ³ |
| Sweden | nivågränsvärde (NVG) (ppm) | 50 ppm |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 500 mg/m ³ |
| Sweden | kortidsvärde (KTV) (ppm) | 150 ppm |
| Sweden | OEL chemical category (SE) | Skin notation |
| Sodium hydroxide (1310-73-2) | | |
| Austria | MAK (mg/m ³) | 2 mg/m ³ (inhalable fraction) |
| Austria | MAK Short time value (mg/m ³) | 4 mg/m ³ (inhalable fraction) |
| Bulgaria | OEL TWA (mg/m ³) | 2 mg/m ³ (alkaline aerosols) |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³) | 2 mg/m ³ |
| France | VME (mg/m ³) | 2 mg/m ³ |
| Greece | OEL TWA (mg/m ³) | 2 mg/m ³ |
| Greece | OEL STEL (mg/m ³) | 2 mg/m ³ |
| USA ACGIH | ACGIH Ceiling (mg/m ³) | 2 mg/m ³ |
| Latvia | OEL TWA (mg/m ³) | 0,5 mg/m ³ |
| Spain | VLA-EC (mg/m ³) | 2 mg/m ³ |

| Sodium hydroxide (1310-73-2) | | |
|--|--|--|
| Switzerland | KZGW (mg/m ³) | 2 mg/m ³ (inhalable dust) |
| Switzerland | MAK (mg/m ³) | 2 mg/m ³ (inhalable dust) |
| United Kingdom | WEL STEL (mg/m ³) | 2 mg/m ³ |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 1 mg/m ³ |
| Denmark | Grænseværdie (ceiling) (mg/m ³) | 2 mg/m ³ |
| Estonia | OEL TWA (mg/m ³) | 1 mg/m ³ |
| Estonia | OEL Ceiling (mg/m ³) | 2 mg/m ³ |
| Finland | HTP-arvo (15 min) | 2 mg/m ³ |
| Finland | OEL Ceiling (mg/m ³) | 2 mg/m ³ |
| Hungary | AK-érték | 2 mg/m ³ |
| Hungary | CK-érték | 2 mg/m ³ |
| Ireland | OEL (15 min ref) (mg/m ³) | 2 mg/m ³ |
| Lithuania | NRV (mg/m ³) | 2 mg/m ³ |
| Norway | Grenseverdier (Takverdi) (mg/m ³) | 2 mg/m ³ |
| Poland | NDS (mg/m ³) | 0,5 mg/m ³ |
| Poland | NDSch (mg/m ³) | 1 mg/m ³ |
| Slovakia | NPHV (priemerná) (mg/m ³) | 2 mg/m ³ |
| Slovenia | OEL TWA (mg/m ³) | 2 mg/m ³ (inhalable fraction) |
| Slovenia | OEL STEL (mg/m ³) | 2 mg/m ³ (inhalable fraction) |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 1 mg/m ³ (inhalable dust) |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 2 mg/m ³ (inhalable dust) |
| Portugal | OEL - Ceilings (mg/m ³) | 2 mg/m ³ |
| Potassium hydroxide (1310-58-3) | | |
| Austria | MAK (mg/m ³) | 2 mg/m ³ (inhalable fraction) |
| Bulgaria | OEL TWA (mg/m ³) | 2 mg/m ³ |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³) | 2 mg/m ³ |
| France | VLE (mg/m ³) | 2 mg/m ³ |
| Greece | OEL TWA (mg/m ³) | 2 mg/m ³ |
| Greece | OEL STEL (mg/m ³) | 2 mg/m ³ |
| USA ACGIH | ACGIH Ceiling (mg/m ³) | 2 mg/m ³ |
| Spain | VLA-EC (mg/m ³) | 2 mg/m ³ |
| Switzerland | MAK (mg/m ³) | 2 mg/m ³ (inhalable dust) |
| United Kingdom | WEL STEL (mg/m ³) | 2 mg/m ³ |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 1 mg/m ³ |
| Denmark | Grænseværdie (ceiling) (mg/m ³) | 2 mg/m ³ |
| Estonia | OEL TWA (mg/m ³) | 2 mg/m ³ |
| Finland | HTP-arvo (15 min) | 2 mg/m ³ |
| Finland | OEL Ceiling (mg/m ³) | 2 mg/m ³ |
| Hungary | AK-érték | 2 mg/m ³ |
| Hungary | CK-érték | 2 mg/m ³ |
| Ireland | OEL (15 min ref) (mg/m ³) | 2 mg/m ³ |
| Norway | Grenseverdier (Takverdi) (mg/m ³) | 2 mg/m ³ |
| Poland | NDS (mg/m ³) | 0,5 mg/m ³ |

| Potassium hydroxide (1310-58-3) | | |
|---------------------------------|---|--------------------------------------|
| Poland | NDSch (mg/m ³) | 1 mg/m ³ |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 1 mg/m ³ (inhalable dust) |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 2 mg/m ³ (inhalable dust) |
| Portugal | OEL - Ceilings (mg/m ³) | 2 mg/m ³ |

8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal protective equipment : Gloves. Protective clothing. Protective goggles.



Materials for protective clothing : Chemically resistant materials and fabrics.

Hand protection : Wear protective gloves.

Eye and Face Protection : Chemical safety goggles.

Skin and body protection : In laboratory, medical or industrial settings, impervious disposable gloves and protective clothing are recommended if skin contact with the product is possible.

Respiratory protection : If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other information : When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|---------------------------------------|
| Physical state | : Liquid |
| Colour | : Clear/colourless to slightly yellow |
| Odour | : Odourless |
| Odour threshold | : No data available |
| pH | : 7,5 - 7,7 |
| Evaporation rate | : No data available |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : Not applicable |
| Vapour pressure | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Solubility | : Soluble in water |
| Partition coefficient: n-octanol/water | : No data available |
| Viscosity | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Hazardous reactions will not occur under normal conditions. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Methylbromide, sodium hydride. Halides. Metal salts of oxoacids. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Boron compounds. Maleic anhydride. Water reactive materials.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

| | |
|---|-------------------------|
| Potassium chloride (7447-40-7) | |
| LD50 oral rat | 2600 mg/kg |
| Monopotassium carbonate (298-14-6) | |
| LD50 oral rat | > 2000 mg/kg bodyweight |
| LD50 dermal rabbit | > 2000 mg/kg bodyweight |
| Sucrose (57-50-1) | |
| LD50 oral rat | 29700 mg/kg |
| Dimethyl sulfoxide (67-68-5) | |
| LD50 oral rat | > 20000 mg/kg |
| LD50 dermal rat | ≈ 40000 mg/kg |
| LC50 inhalation rat (mg/l) | > 5,33 mg/l/4h |
| Sodium hydroxide (1310-73-2) | |
| LD50 oral rat | 140 - 340 mg/kg |
| Potassium hydroxide (1310-58-3) | |
| LD50 oral rat | 284 mg/kg |

| | |
|-----------------------------------|---|
| Skin corrosion/irritation | : Not classified. (Based on available data, the classification criteria are not met) pH: 7,5 - 7,7 |
| Serious eye damage/irritation | : Not classified (Based on available data, the classification criteria are not met) pH: 7,5 - 7,7 |
| Respiratory or skin sensitisation | : Not classified (Based on available data, the classification criteria are not met) |
| Germ cell mutagenicity | : Not classified (Based on available data, the classification criteria are not met) |
| Carcinogenicity | : Not classified (Based on available data, the classification criteria are not met) |
| Reproductive toxicity | : Not classified (Based on available data, the classification criteria are not met) |
| STOT-single exposure | : Not classified (Based on available data, the classification criteria are not met) |

| | |
|---|--|
| STOT-repeated exposure | : Not classified (Based on available data, the classification criteria are not met) |
| Aspiration hazard | : Not classified (Based on available data, the classification criteria are not met) |
| Symptoms/Injuries After Inhalation | : Prolonged exposure may cause irritation. |
| Symptoms/Injuries After Skin Contact | : Prolonged exposure may cause skin irritation. DMSO may enhance the rate of skin absorption of skin-permeable substances. |
| Symptoms/Injuries After Eye Contact | : May cause slight irritation to eyes. |
| Symptoms/Injuries After Ingestion | : Ingestion may cause adverse effects. |
| Chronic Symptoms | : None known. |
| Potential adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified.

| Potassium chloride (7447-40-7) | |
|--------------------------------|---|
| LC50 fish 1 | 1060 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static]) |
| EC50 Daphnia 1 | 825 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 fish 2 | 750 (750 - 1020) mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| EC50 Daphnia 2 | 880 mg/l (Exposure time: 24 h - Species: Daphnia magna) |
| Dimethyl sulfoxide (67-68-5) | |
| LC50 fish 1 | 34 g/l (Exposure time: 96 h - Species: Pimephales promelas) |
| LC50 fish 2 | 33 - 37 g/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static]) |
| Sodium hydroxide (1310-73-2) | |
| LC50 fish 1 | 45,4 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static]) |
| EC50 Daphnia 1 | 40 mg/l |

12.2. Persistence and degradability

| CryoStor CS2, CS5, CS10 | |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |

12.3. Bioaccumulative potential

| CryoStor CS2, CS5, CS10 | |
|---------------------------------|------------------|
| Bioaccumulative potential | Not established. |
| Dimethyl sulfoxide (67-68-5) | |
| Log Pow | -2,03 |
| Potassium hydroxide (1310-58-3) | |
| Log Pow | 0,65 |

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|--|--|
| Product/Packaging disposal recommendations | : Dispose of contents/container in accordance with local, regional, national, and international regulations. |
| Ecology - waste materials | : Avoid release to the environment. |

SECTION 14: Transport information

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In accordance with ADR / RID / IMDG / IATA / ADN

| ADR | IMDG | IATA | ADN | RID |
|---|--|------------------------------------|------------------------------------|------------------------------------|
| 14.1. UN number | | | | |
| Not regulated for transport | | | | |
| 14.2. UN proper shipping name | | | | |
| Not applicable | Not applicable | Not applicable | Not applicable | Not applicable |
| 14.3. Transport hazard class(es) | | | | |
| Not applicable | Not applicable | Not applicable | Not applicable | Not applicable |
| 14.4. Packing group | | | | |
| Not applicable | Not applicable | Not applicable | Not applicable | Not applicable |
| 14.5. Environmental hazards | | | | |
| Dangerous for the environment : No | Dangerous for the environment: No Marine pollutant : No | Dangerous for the environment : No | Dangerous for the environment : No | Dangerous for the environment : No |

14.6. Special precautions for user

No additional information available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

| |
|--|
| Potassium chloride (7447-40-7) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |
| Monopotassium carbonate (298-14-6) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |
| Sucrose (57-50-1) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |
| Dimethyl sulfoxide (67-68-5) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |
| Sodium hydroxide (1310-73-2) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |
| Potassium hydroxide (1310-58-3) |
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources

: Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

Other information : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Full Text of H- and EUH-statements:

| | |
|---------------------|---|
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| Eye Dam. 1 | Serious eye damage/eye irritation, Category 1 |
| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2 |
| Met. Corr. 1 | Corrosive to metals, Category 1 |
| Skin Corr. 1A | Skin corrosion/irritation, Category 1A |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2 |
| H290 | May be corrosive to metals. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |

Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
 ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
 ATE - Acute Toxicity Estimate
 BCF - Bioconcentration Factor
 BEI - Biological Exposure Indices (BEI)
 BOD – Biochemical Oxygen Demand
 CAS No. - Chemical Abstracts Service Number
 CLP – Classification, Labeling and Packaging Regulation (EC) No 1272/2008
 COD – Chemical Oxygen Demand
 EC – European Community
 EC50 - Median Effective Concentration
 EEC – European Economic Community
 EINECS – European Inventory of Existing Commercial Chemical Substances
 EmS-No. (Fire) - IMDG Emergency Schedule Fire
 EmS-No. (Spillage) - IMDG Emergency Schedule Spillage
 EU – European Union
 ErC50 - EC50 in Terms of Reduction Growth Rate
 GHS – Globally Harmonized System of Classification and Labeling of Chemicals
 IARC - International Agency for Research on Cancer
 IATA - International Air Transport Association
 IBC Code - International Bulk Chemical Code
 IMDG - International Maritime Dangerous Goods
 IPRV - Ilgalaikio Poveikio Ribinis Dydis
 IOELV – Indicative Occupational Exposure Limit Value
 LC50 - Median Lethal Concentration
 LD50 - Median Lethal Dose
 LOAEL - Lowest Observed Adverse Effect Level
 LOEC - Lowest-Observed-Effect Concentration
 Log Koc - Soil Organic Carbon-water Partitioning Coefficient
 Log Kow - Octanol/water Partition Coefficient
 Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water
 MAK – Maximum Workplace Concentration/Maximum Permissible Concentration

MARPOL - International Convention for the Prevention of Pollution
 NDS - Najwyższe Dopuszczalne Stezenie
 NDSC - Najwyższe Dopuszczalne Stezenie Chwilowe
 NDSP - Najwyższe Dopuszczalne Stezenie Pulapowe
 NOAEL - No-Observed Adverse Effect Level
 NOEC - No-Observed Effect Concentration
 NRD - Nevirsytinas Ribinis Dydis
 NTP – National Toxicology Program
 OEL - Occupational Exposure Limits
 PBT - Persistent, Bioaccumulative and Toxic
 PEL - Permissible Exposure Limit
 pH – Potential Hydrogen
 REACH – Registration, Evaluation, Authorisation, and Restriction of Chemicals
 RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail
 SADT - Self Accelerating Decomposition Temperature
 SDS - Safety Data Sheet
 STEL - Short Term Exposure Limit
 TA-Luft - Technische Anleitung zur Reinhaltung der Luft
 TEL TRK – Technical Guidance Concentrations
 ThOD – Theoretical Oxygen Demand
 TLM - Median Tolerance Limit
 TLV - Threshold Limit Value
 TPRD - Trumpalaikio Poveikio Ribinis Dydis
 TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
 TRGS 552 – Technische Regeln für Gefahrstoffe - N-Nitrosamine
 TRGS 900 - Technische Regel für Gefahrstoffe 900 – Arbeitsplatzgrenzwerte
 TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte
 TSCA - Toxic Substances Control Act
 TWA - Time Weighted Average
 VOC – Volatile Organic Compounds
 VLA-EC - Valor Límite Ambiental Exposición de Corta Duración
 VLA-ED - Valor Límite Ambiental Exposición Diaria
 VLE – Valeur Limite D'exposition
 VME – Valeur Limite De Moyenne Exposition
 vPvB - Very Persistent and Very Bioaccumulative
 WEL – Workplace Exposure Limit
 WGK - Wassergefährdungsklasse

EU GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.