

Date of update: 01.11.2024

VERSION: 1.0/EN

[In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended]

Section 1: Identification of the substance/mixture and of the company/undertaking
1.1 Product identifier

 Trade name: **Vatnsvirkinn / ProCold FACTORY**
1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: low-freezing liquid for industrial installations (refrigerating, air-conditioning, heating installations).

Uses advised against: not determined.

1.3 Details of the supplier of the safety data sheet

Distributor: Vatnsvirkinn ehf

Address: Skemmuvegur 48, 200 Kópavogur, Iceland

Telephone: +354 510 1400

E-mail address for a competent person responsible for SDS: onundur@vatnsvirkinn.is

1.4 Emergency telephone number

112

Eitrunarmiðstöð Landspítala 543 2222

Section 2: Hazards identification
2.1 Classification of the substance or mixture
Acute Tox. 4 H302, STOT RE 2 H373

Harmful if swallowed. May cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

2.2 Label elements
Hazard pictograms and signal words

WARNING
Names of hazardous components placed on the label

Contains: ethylene glycol.

Hazard statements

H302 Harmful if swallowed.

H373 May cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

Precautionary statements

P270 Do not eat, drink or smoke when using this product.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P314 Get medical advice/attention if you feel unwell.

P330 Rinse mouth.

P501 Dispose of contents/container to properly labelled waste containers according to national law.

2.3 Other hazards

The components of this mixture do not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH. The product does not contain substances included in the list established in accordance with Article 59(1) for having endocrine disrupting properties, or substances identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 % by weight.

Section 3: Composition/information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

CAS number: 107-21-7 EC number: 203-473-3 Index number: 603-027-00-1 REACH number: 01-2119456816-28-XXXX	<u>ethylene glycol</u> ¹ Acute Tox. 4 H302, STOT RE 2 H373	25 – 95 %
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1) Substance with occupational exposure limit values established on the European Union level.

Full text of each relevant H phrase is given in section 16 of SDS.

Section 4: First aid measures

4.1 Description of first aid measures

Skin contact: wash contaminated skin thoroughly with water and soap for at least 15 minutes. Take off contaminated clothes. Wash clothes before reuse. Seek medical advice if disturbing symptoms appear.

Eye contact: remove contact lenses. Rinse contaminated eyes with water for at least 15 minutes, Avoid strong stream of water – risk of damage of the cornea. Contact an ophthalmologist if disturbing symptoms appear.

Ingestion: immediately induce vomiting if the person is conscious with caution (risk of choking). Adults: give 100-150 ml of 40 % of ethyl alcohol to drink (for weakening the metabolism of ethylene glycol), children: give 1 table spoon of ethyl alcohol with a half of the glass of water with sugar on every 10 kg of weight. Warning! Do not induce vomiting if the person is besotted or unconscious, do not give anything to drink. Call a doctor immediately, show a label.

Inhalation: remove the victim to fresh air, keep warm and calm. Consult a doctor if disturbing symptoms appear.

4.2 Most important symptoms and effects, both acute and delayed

Skin contact: prolonged and frequent exposure may cause degreasing, redness of the skin.

Eye contact: redness, tearing, burning sensation, blurred vision.

Ingestion: firstly, similar symptoms as after alcohol intoxication: agitation, problems with speaking, balance disorders, headaches and drowsiness, then nausea, vomiting, diarrhea. In case of heavy poisoning - circulatory disorders, increased heart rate, drop in blood pressure, coma, loss of consciousness, death.

Inhalation: prolonged exposure or high concentrations of vapours or mist may cause irritation of the respiratory tract and nose, dizziness, weakness, fatigue, nausea, headache, drowsiness.

Other effects of exposure: may cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

4.3 Indication of any immediate medical attention and special treatment needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured.

Treatment of ethylene glycol poisoning, should be adequate to the patient's condition and should include: gastric lavage, if the victim is conscious give 100-150 ml of 40% ethyl alcohol, diluted, if need be, with water, if the victim is unconscious – give intravenously 500 ml of 10-15% ethanol solution in 5% glucose solution (administration time 2-3 hours). Keep the concentration of ethyl alcohol in the blood above 1 per mille. In case of severe poisoning, use hemodialysis, diuresis.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: extinguishing powders, CO₂, alcohol-resistant foam, water spray.

Unsuitable extinguishing media: water jet – risk of spreading the fire.

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5.2 Special hazards arising from the substance or mixture

During the fire, the product may produce harmful gases containing, e.g. carbon oxides. Do not inhale combustion products, they can be dangerous for human health.

5.3 Advice for firefighters

Use personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals. In case of fire cool endangered containers with water spray from safe distance. Do not release extinguishing water into drains, surface and ground waters.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. Ensure that only the trained personnel removes the effects of the accident. In case of large spills, isolate the exposed area. Avoid skin and eyes contamination. Do not walk on the released product - risk of slipping. Ensure adequate ventilation. Do not inhale vapours. Wear personal protective equipment.

6.2 Environmental precautions

In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Notify relevant emergency services. Prevent entry into sewers, water installations and secure entrances to basements and closed areas.

6.3 Methods and material for containment and cleaning up

Place the damaged containers in a suitable sealed protective package. Collect the leakage with non-flammable liquid absorbing materials (e.g.: sand, soil, universal binding agents, silica, vermiculite etc.) and place it in labelled waste containers. Treat the collected material as waste. Ventilate the contaminated area and clean it with large amount of water.

6.4 Reference to other sections

Appropriate conduct with waste product – see section 13. Personal protective equipment – see section 8.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices. Do not eat, drink or smoke when using the product. Use personal protective equipment. Avoid contact with skin and eyes. Do not inhale vapours. Ensure adequate ventilation. Before break and after work wash hands. Unused containers keep tightly closed. Do not let the product get into the mouth.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in tightly closed containers in a dry and well ventilated place. Recommended storage temperature: below 40 °C. Keep away from food, beverages or feed for animals. Avoid direct exposure to sunlight, sources of heat and ignition. After opening, seal the container and store it in an upright position to avoid leakage.

7.3 Specific end use(s)

No information about other uses than those mentioned in subsection 1.2.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Specification	TWA 8 hour	STEL 15 min
ethylene glycol [CAS 107-21-1]	52 mg/m ³	104 mg/m ³

Legal Basis: Commission Directive 2006/15/EC, 2000/39/EC, 2009/161/EC, 2017/164/EU, 2019/1831/EU.

The table above shows the maximum workplace concentration values at the European Union level.

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Please check any national occupational exposure limit values in your country.

Recommended control procedures

Procedures Concerning the control over the dangerous components concentrations in the air and control over the air quality in the workplace - if they are available and Justified for the position - in Accordance with the European Standards, with the conditions within the exposure place and a proper test methodology adapted to the working conditions.

DNEL values

Component	Population	Route of exposure	Exposure/effects	DNEL
ethylene glycol [CAS 107-21-1]	workers	inhalation	local effects, long-term exposure	35 mg/m ³
		skin	systemic effects, long-term exposure	106 mg/kg
	consumers	inhalation	local effects, long-term exposure	7 mg/m ³
		skin	systemic effects, long-term exposure	53 mg/kg

PNEC values

Component	Route of exposure	PNEC
ethylene glycol [CAS 107-21-1]	fresh water	10 mg/l
	marine water	1 mg/l
	fresh water sediment	20.9 mg/kg

8.2 Exposure controls

Appropriate engineering controls

Observe good occupational hygiene and safety practices. A local extract is preferred because it removes impurities from the place of their formation, preventing them from spreading. Do not eat, drink or smoke when using the product. Before break and after work wash hands carefully.

Personal protective equipment

The necessity to use and selection of appropriate personal protective equipment should take into account the type of risk posed by the product, working conditions and the way of handling the product. The personal protective equipment used must meet the requirements of Regulation (EU) 2016/425 and the relevant standards. The employer is obliged to provide protection measures appropriate to the activities performed and meeting all quality requirements, including their maintenance and cleaning. Any contaminated or damaged PPE must be replaced immediately.

Hand protection

Use protective gloves in accordance with EN 374 standard. Recommended glove material: neopren, PVA, butyl rubber, nitrile rubber. In case of a short contact, use protective gloves with effectiveness level 2 or higher (breakthrough time > 30 min.). In case of a prolonged contact, use protective gloves with effectiveness level 6 (breakthrough time > 480 min.).

The material that the gloves are made of must be impenetrable and resistant to the product's effects. The selection of material must be performed with consideration of breakthrough time, penetration speed and degradation. Moreover, the selection of proper gloves depends not only on the material, but also on other quality features and changes depending on the manufacturer. The producer should provide detailed information regarding the exact breakthrough time. This information should be followed.

Body protection

Depending on the performed task, protective clothing appropriate to the potential risk should be worn.

Eyes protection

Use tightly fitting protective glasses in accordance with EN 166 if there is a risk of eye contamination.

Respiratory protection

It is not required in case of adequate ventilation. If the permissible OEL values are exceeded, in emergency situations use half-masks / masks with an appropriate organic vapor absorber.

Thermal hazards

Do not occur.

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Environmental exposure controls

Avoid environment contamination, do not empty into drains. Possible emissions from the ventilation systems and processing equipment should be controlled in order to determinate their compatibility with environmental protection regulations.

Section 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties

Physical state:	liquid
Colour:	pink
Odour:	characteristic
Melting point/freezing point:	- 35 °C (after dilution 1:1)
Boiling point or initial boiling point and boiling range:	not determined
Flammability:	not applicable
Lower and upper explosion limit:	15,3 % vol./3,2 % vol. (ethylene glycol)
Flash point:	not applicable, product is not flammable
Auto-ignition temperature:	411 (ethylene glycol)
Decomposition temperature:	not determined
pH:	not determined
Kinematic viscosity:	not determined
Solubility:	soluble in water
Partition coefficient n-octanol/water (log value):	-1,3 (ethylene glycol)
Vapour pressure:	not determined
Density and/or relative density:	> 1 g/cm ³
Relative vapour density:	not determined
Particle characteristics:	not applicable

9.2 Other information

No additional test results.

Section 10: Stability and reactivity
10.1 Reactivity

The product is reactive. It does not undergo hazardous polymerization. See also subsections 10.3-10.5.

10.2 Chemical stability

The product is stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions

Hazardous reactions are not known.

10.4 Conditions to avoid

Avoid direct sunlight, sources of heat and ignition.

10.5 Incompatible materials

Strong oxidants, bases, acids.

10.6 Hazardous decomposition products

There are no hazardous decomposition products under normal conditions of use and storage.

Section 11: Toxicological information
11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Toxicity of the components
ethylene glycol [CAS 107-21-1]

LD ₅₀ (skin, rabbit)	9530 mg/kg
LC ₅₀ (inhalation, rat)	10876 mg/l/4 h
Lethal dose for human	1-1,5 ml/ kg bw

Mixture toxicity
Acute toxicity

ATE _{mix} (oral)	526,3 mg/kg
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Harmful if swallowed.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

May cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

Routes of exposure: skin contact, eye contact, inhalation, ingestion. See subsection 4.2 for more information on the effects from each possible route of exposure.

Symptoms related to the physical, chemical and toxicological characteristics

Ethylene glycol has little direct effect on the central nervous system (CNS), while the course of intoxication is determined by its metabolites: aldehyde and glycolic acid, glyoxylic acid, oxalic acid and metabolic acidosis resulting from poisoning. It is metabolized in the liver and excreted by the kidneys.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

CNS: at first symptoms of alcohol intoxication, then increased impaired consciousness, psychomotor agitation, speech disorders, headaches and dizziness, drowsiness, breathing disorders, shortness of breath.

Lungs: possible pulmonary edema and / or inflammation.

Heart and circulatory system: tachycardia, possible heart arrhythmia and atrioventricular and intraventricular conduction disorders, signs of myocardial hypoxia.

Kidneys: acute non-inflammatory renal failure after several to several dozen hours from ingestion.

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11.2 Information on other hazards
Endocrine disrupting properties

The product does not contain substances included in the list established in accordance with Article 59(1) for having endocrine disrupting properties, or substances identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 % by weight.

Other information

No data.

Section 12: Ecological information
12.1 Toxicity
Toxicity of the components
ethylene glycol [CAS 107-21-1]

Toxicity for fish	LC ₅₀	18.500 mg/l/96h
Toxicity to crustaceans	EC ₅₀	> 1 000 mg/l/48h/ <i>Daphnia magna</i>

Mixture toxicity

Product is not classified as hazardous for the environment.

12.2 Persistence and degradability

Product is biodegradable > 90 %.

12.3 Bioaccumulative potential

Data for components

ethylene glycol [CAS 107-21-1]

log Po/w = -1,36
 BCF = 10 – 200

12.4 Mobility in soil

Product is mobile in soil and in the aquatic environment.

12.5 Results of PBT and vPvB assessment

Components of this mixture do not meet the criteria of PBT or vPvB substances.

12.6 Endocrine disrupting properties

The product does not contain substances included in the list established in accordance with Article 59(1) for having endocrine disrupting properties, or substances identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 % by weight.

12.7 Other adverse effects

The mixture is not classified as hazardous to the ozone layer. The possibility of other harmful effects of individual components of the mixture on the environment should be considered (e.g. global warming potential).

Section 13: Disposal considerations
13.1 Waste treatment methods

Disposal methods for the product: disposal in accordance with the local legislation. Store residues in original containers. Do not empty into drains. Waste code should be given in the place of waste formation.

Disposal methods for used packing: reuse/recycle/eliminate empty containers in accordance with the local legislation. Only completely empty packaging can be recycled. Treat contaminated packages as hazardous waste.

Legal basis: Directive 2008/98/EC as amended, 94/62/EC as amended.

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Section 14: Transport information**14.1 UN number or ID number**

Not applicable, product is not classified as dangerous during transport.

14.2 UN proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packing group

Not applicable.

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Section 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

ADR Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG Code International Maritime Dangerous Goods Code.

IATA Dangerous Goods Regulations.

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

Commission Regulation (EU) No 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 as amended.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste as amended.

Commission Regulation (EU) No 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC.

Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC.

Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

Commission Directive 2017/164/EU of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

Commission Directive 2019/1831/EU 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.

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15.2 Chemical safety assessment

Chemical safety assessment is not required for the mixture.

Section 16: Other information
Full text of indicated H phrases mentioned in section 3

H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.

Clarification of aberrations and acronyms

PBT	Persistent, Bioaccumulative and Toxic substance
vPvB	very Persistent, very Bioaccumulative substance
DNEL	Derived No-Effect Level
PNEC	Predicted No-Effect Concentration
Acute Tox. 4	Acute toxicity category 4
STOT RE 2	Specific target organ toxicity — repeated exposure category 2

Trainings

Before commencing work with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training.

Key literature references and sources of data

This SDS was prepared on the basis of safety data sheets of the individual components, literature data, online databases (e.g. ECHA, TOXNET, COSING), our knowledge and experience, taking into account the current legislation.

Classification and procedures used to classify the mixture in accordance with Reg. EC 1272/2008 as amended

Acute Tox. 4 H302	calculation method
STOT RE. 2 H373	calculation method

Other data

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Changes:	section: 1-16
SDS issued by:	THETA Consulting Sp. z o.o.

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are to be treated as aid to safety in transport, storage and usage of the product. That does not free the user from the responsibility of improper usage of the information above and also of improper compliance with the law norms in the field.