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

- 1.1. Product Identifier**
Trade name: GLITHERM EKO CONCENTRATE
- 1.2. Relevant identified uses of the substance/mixture and uses advised against**
Recommended use: Filling refrigeration, air conditioning, heating, solar and heat pump installations
- 1.3. Details of the supplier of the safety data sheet**
Company: GLI-THERM Sp. z o.o.
ul. Rozwojowa 11, 44-338 Jastrzębie-Zdrój
Tel.: +48 32 435 30 76
info@glitherm.eu
www.glitherm.eu
- 1.4. Emergency telephone number:** +48 32 435 30 76; 112

SECTION 2. HAZARDS IDENTIFICATION

- 2.1. Classification of the substance or mixture**
This product is not classified as dangerous.
Physical and chemical hazards:
- none.
Human health hazards:
- none.
Environmental hazards:
- none.
- 2.2. Label elements**
Hazard pictograms: –
Signal Word: –
H Phrases:
None.
P Phrases:
P102 Keep out of reach of children
Safety data sheet available on request.
- 2.3. Other hazards**
On the basis of available data, the product does not contain any PBT or vPvB at concentration equal to or greater than 0,1% by weight. The mixture does not contain components considered to have endocrine disrupting properties.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

- 3.1. Substances**
N.A.
- 3.2. Mixtures**
93.0% - 95.0% Propylene glycol; Propane-1,2-diol
Index No: – CAS No: 57-55-6 EC No: 200-338-0
This substance is not classified as dangerous. This is substance for which there are Community workplace exposure limits.

SECTION 4. FIRST AID MEASURES

- 4.1. Description of first aid measures**
In case of Inhalation:
- remove to open air
- in case of accident or unwellness, consult a doctor immediately and show him packing or label.
In case of skin contact:
- immediately take off all contaminated clothing
- immediately wash with plenty of water
- if irritation persists, obtain immediate medical attention.
In case of eyes contact:
- remove contact lenses, if present

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- irrigate copiously with clean, fresh water form at least 15 minutes
- if irritation persists, obtain immediate medical attention.

In case of Ingestion:

- rinse mouth thoroughly with water; give plenty of water to drink
- induce vomiting only if indicated by the doctor
- give nothing by mouth to an unconscious person
- get medical attention if any discomfort continues
- show this safety data sheet to the medical personnel.

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

See section 11.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- suitable extinguishing media: chemical powders (type ABC or BC), CO₂, foam, nebulized water; extinguishing agent suitable for type of surroundings fire
- extinguishing media which must not be used for safety reasons: water jet; snow fire extinguishers

5.2. Special hazards arising from the substance or mixture

- do not inhale explosion and combustion gases
- burning produces heavy smoke (CO, CO₂)
- cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk
- cool containers exposed to flames with water until well after the fire is out.

5.3. Advice for firefighters

- use suitable breathing apparatus
- collect contaminated fire extinguishing water separately. This must not be discharged into drains
- move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

- wear personal protection equipment
- remove all sources of ignition
- evacuate area; inform the responsible authorities
- wear breathing apparatus if exposed to vapours/dusts/aerosols
- provide adequate ventilation
- use appropriate respiratory protection.

6.2. Environmental precautions

- do not allow to enter into soil/subsoil; do not allow to enter into surface water or drains
- retain contaminated washing water and dispose it
- in case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

- immediately remove the product using appropriate personal protective equipment
- eliminate all ignition sources if safe to do so; no smoking, sparks, flames or other sources of ignition near spillage
- in case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities
- in case of large of spillage, contain a spill by bunding
- suitable material for taking up: absorbing material (e.g. sand, soil)
- flush contaminated area with plenty of water, retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

- wear personal protection equipment
- keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.
- use localized ventilation system
- avoid the accumulation of electrostatic charges
- do not eat or drink while working
- do not smoke, do not use matches or lighters
- immediately take off all contaminated clothing.

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7.2. Conditions for safe storage, including any incompatibilities

- always keep the containers tightly closed, in a cool, well ventilated place (under 40 °C)
- keep only in the original container
- keep containers upright
- keep away from food, drink and feed
- keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.
- cool and adequately ventilated
- do not store with incompatible substances (see section 10).

7.3. Specific end use(s)

See section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limit values:

Propane-1,2-diol:

OEL TWA: 10 mg/m³

DNEL - Propane-1,2-diol:

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term systemic effects	168 mg/m ³
Workers	Inhalation	Long-term local effects	10 mg/m ³
Consumers	Inhalation	Long-term systemic effects	50 mg/m ³
Consumers	Inhalation	Long-term local effects	10 mg/m ³

PNEC - Propane-1,2-diol:

Compartment	Value
Fresh water	260 mg/l
Marine water	26 mg/l
Aquatic intermittent release	183 mg/l
Fresh water sediment	572 mg/kg
Soil	50 mg/kg
Sewage treatment plant	20 000 mg/l

8.2. Exposure controls

Eye protection:

- use close fitting safety goggles, masks suitable for the product if possible exposure.

Protection for skin and hands:

- in general situation, hand and skin protection is not needed; use protective gloves and protective clothing if possible exposure.
The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Respiratory protection:

- good ventilation is essential when handling this material – do not breathe vapour
- use adequate protective respiratory equipment
- use a properly fitted, air-purifying or air-fed-respirator complying with an approved standard (with "multi-purpose combination" type or AXBEK type) if a risk assessment indicates this is necessary.

Thermal Hazards:

None.

Environmental exposure controls:

- do not allow to enter into soil/subsoil; do not allow to enter into surface water or drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

(a) Physical state:	liquid
(b) Colour:	N.A.
(c) Odour:	N.A.
(d) Melting point/freezing point:	N.A.
(e) Boiling point or initial boiling point and boiling range:	N.A.
(f) Flammability:	Not applicable
(g) Lower and upper explosion limit:	2.6% vol./ 12.6% vol. (Propane-1,2-diol)
(h) Flash point:	> 60 °C

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(i) Auto-ignition temperature:	N.A.
(j) Decomposition temperature:	N.A.
(k) pH:	7.5 – 9.5.
(l) Kinematic viscosity:	N.A.
(m) Solubility:	N.A.
(n) Partition coefficient n-octanol/water (log value):	-0.92 (Propane-1,2-diol)
(o) Vapour pressure:	N.A.
(p) Density and/or relative density:	1.050 g/cm ³ (w 20 °C)
(q) Relative vapour density:	2.6 (Air = 1) (Propane-1,2-diol)
(r) Particle characteristics:	Not applicable

9.2. Other information

N.A.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen.

10.4. Conditions to avoid

- keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.
- avoid accumulating electrostatic charge.

10.5. Incompatible materials

- strong acids and bases, alkali, sodium, calcium and other active metal, halogen, metal oxide, non-metal oxide, acyl halide and metal phosphide
- strong oxidants.

10.6. Hazardous decomposition products

See section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

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

There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.

a) Acute toxicity:

Propylene glycol:

Oral: Rat LD₅₀ 20000 mg/kg

Skin: Rabbit LD₅₀ 20800 mg/kg

b) Skin corrosion/irritation:

Not applicable.

c) Serious eye damage/irritation:

Not applicable.

d) Respiratory or skin sensitization:

Not applicable.

e) Germ cell mutagenicity:

Not applicable.

f) Carcinogenicity:

Not applicable.

g) Reproductive toxicity:

Not applicable.

h) STOT-single exposure:

Not applicable.

i) STOT-repeated exposure:

Not applicable.

j) Aspiration hazard:

Not applicable.

11.2. Information on other hazards:

None.

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SECTION 12. ECOLOGICAL INFORMATION

Adopt good working practices, so that the product is not released into the environment. Prevent product entering water courses, sewers and prevent penetration of the product into the earth.

12.1. Toxicity:

N.A.

Propylene glycol:

LC₅₀: 39800 mg/l - toxicity to fish, 96h

EC₅₀: > 1000 mg/l - toxicity to invertebrates, 48h

ErC₅₀: > 1000 mg/l - toxicity to algae, 72h

NOEC: > 100 mg/l - toxicity to fish

NOEC: 1000 mg/l - toxicity to invertebrates

NOEC: 1000 mg/l - toxicity to algae

12.2. Persistence and degradability:

Propylene glycol is easily biodegradable and completely decomposes.

12.3. Bioaccumulative potential:

N.A.

Propylene glycol – BCF: 1

12.4. Mobility in soil:

N.A.

Propylene glycol - It does not adsorb in the solid phase of the soil, Koc = 1

12.5. Results of PBT and vPvB assessment:

vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties:

The mixture does not contain components considered to have endocrine disrupting properties.

12.7. Other adverse effects:

Information not available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Reuse, when possible. Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. TRANSPORT INFORMATION

- | | |
|--|------|
| 14.1. UN number or ID number: | N.A. |
| 14.2. UN proper shipping name: | N.A. |
| 14.3. Transport hazard class(es): | N.A. |
| 14.4. Packing group: | N.A. |
| 14.5. Environmental hazards: | N.A. |
| 14.6. Special precautions for user: | N.A. |
| 14.7. Maritime transport in bulk according to IMO instruments: | N.A. |

SECTION 15. REGULATORY INFORMATION

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

1. 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
2. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation 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
3. COMMISSION REGULATION (EU) 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).

15.2. Chemical safety assessment

No chemical safety assessment has been processed for the mixture and the substances it contains.

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SECTION 16. OTHER INFORMATION

This document was prepared by a competent person who has received appropriate training. This safety data sheet has been prepared on the basis of data provided by the manufacturer.

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This document must not be regarded as a guarantee on any specific product property

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CLP: Classification, Labeling, Packaging.

DNEL: Derived No Effect Level.

EINECS: European Inventory of Existing Commercial Chemical Substances.

PNEC: Predicted no-effect concentration - the concentration of an agent at which no effect is expected to occur for a specific organism

EC50: Effective concentration; Half maximal effective concentration

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

STOT: Specific Target Organ Toxicity.

TLV TWA: Threshold Limit Value for the Time Weighted Average 8 hour day.

Full text of phrases referred to in Section 3:

None.

Updating the card is caused by a change in section 5, 8, 9, 10, 11, 12 and change of legal information.

This document was prepared by: CHEMIKOS; www.chemikos.pl; e-mail: biuro@chemikos.pl



ATEST HIGIENICZNY

B.BK.60112.0434.2022

HYGIENIC CERTIFICATE

ORYGINAŁ

NATIONAL INSTITUTE OF PUBLIC HEALTH NIH – NATIONAL RESEARCH INSTITUTE

Wyrób / product: **GLITHERM EKO, GLITHERM EKO KONCENTRAT, GLITHERM EKO PRO, GLITHERM EKO PRO KONCENTRAT, GLICAR EKO, GLICAR EKO KONCENTRAT**

Zawierający / containing: propylene glycol, corrosion inhibitor and other components in accordance with the manufacturer's documentation.

Przeznaczony do / destined: for use in closed-loop refrigeration systems, air conditioning systems, heating systems, solar systems, heat pumps, in sprinkler systems and as a coolant in food-manufacturing industry (without direct contact with food products).

Wymieniony wyżej produkt odpowiada wymaganiom higienicznym przy spełnieniu następujących warunków / the above-named product is acceptable according to hygienic criteria with the following conditions:

The product should be used with necessary safety measures in accordance with the product safety data sheet and in compliance with legal requirements. The product and water containing the product must not penetrate into the installations of water intended for human consumption.

Instruction for use and storage of the preparation should be attached to each packaging of the product. The product must be kept out of the reach of children.

The hygienic certificate does not relate to the technical parameters, functional values or assessment of the allergenic properties of the product.

Wytwórca / producer:

GLI-THERM Sp. z o. o.
44-338 Jastrzębie-Zdrój
ul. Rozwojowa 11

Niniejszy dokument wydano na wniosek / this certificate issued for:

GLI-THERM Sp. z o. o.
44-338 Jastrzębie-Zdrój
ul. Rozwojowa 11



Atest może być zmieniony lub unieważniony po przedstawieniu stosownych dowodów przez którąkolwiek stronę. Niniejszy atest traci ważność po 2027.11.02 lub w przypadku zmian w recepturze albo w technologii wytwarzania wyrobu.

The certificate may be corrected or cancelled after appropriate motivation. The certificate loses its validity after 2027.11.02 or in the case of changes in composition or in technology of production.

Data wydania atestu higienicznego: 22 listopada 2022

The date of issue of the certificate: 22nd November 2022

Kierownik
Zakładu Bezpieczeństwa Zdrowotnego
Środowiska

dr hab. Jolanta Solecka
dr hab. Jolanta Solecka, prof. NIZP PZH-PIB

TECHNICAL SPECIFICATION

PRODUCT NAME: GLITHERM ECO CONCENTRATE 93%

SPECIFICATION

Type of glycol	Monopropylene Glycol
Glycol concentration	93%
Color	According to the dye
Ethyl alcohol content	None
Formulation	Homogeneous liquid without sediment
Smell	Weak or no odour
Density	1,050 g/cm ³ (at 20°C)
pH	7,5 – 9,5
Crystallisation temperature (dilution ratio)	-15°C (35% concentrate – 65% demineralized water) -17°C (37% concentrate – 63% demineralized water) -20°C (41% concentrate – 59% demineralized water) -25°C (45% concentrate – 55% demineralized water) -30°C (49% concentrate – 51% demineralized water) -35°C (53% concentrate – 47% demineralized water)

The given physical and chemical values are the typical values.

The manufacturer of the product in question guarantees that the product does not contain any glycerine additives and does not come from the regeneration processes.

USAGE

Refrigeration, air-conditioning, heating systems, heat pumps, sprinkler devices and as a coolant in the food industry without direct contact with food. It is also ideal medium for all types of systems using renewable energy.

ADDITIONAL INFORMATION

The product has standards that allow it for use in construction, i.e. ITB Technical Recommendation and the Hygienic Certificate of the National Institute of Hygiene.

The product provides full anti-corrosion protection, prevents formation of deposits and microbiological life, keeps installations clean.

The product is covered by a 5-year warranty.

Before use, it must be diluted with demineralized water in the right proportions.