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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

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

engine coolant

1.3. Details of the supplier of the safety data sheet

Company name:	Vierol AG	
Street:	Karlstrasse 19	
Place:	D-26123 Oldenburg	
Telephone:	+49 (0) 441 – 210 20 – 0	Telefax: +49 (0) 441 – 210 20 –111
e-mail:	info@vierol.de	
Internet:	www.vierol.de	
Responsible Department:	Giftinformationszentrum Nord (Göttingen)	
	+49 (0)551/19240	

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:

Acute toxicity: Acute Tox. 4

Reproductive toxicity: Repr. 2

Hazard Statements:

Harmful if swallowed.

Suspected of damaging the unborn child.

2.2. Label elements**Regulation (EC) No. 1272/2008****Hazard components for labelling**

ethanediol; ethylene glycol

2,2'-oxybisethanol; diethylene glycol

Potassium 2-ethyl hexanoate

Signal word: Warning**Pictograms:****Hazard statements**

H302 Harmful if swallowed.

H361d Suspected of damaging the unborn child.

Precautionary statements

P501 Dispose of contents/container to Dispose of waste according to applicable legislation..

P313 Get medical advice/attention.

P308 IF exposed or concerned:

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P264 Wash hands thoroughly after handling.

P201 Obtain special instructions before use.

2.3. Other hazards

No information available.

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SECTION 3: Composition/information on ingredients**3.2. Mixtures****Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
107-21-1	ethanediol; ethylene glycol			75-95 %
	203-473-3	603-027-00-1		
	Acute Tox. 4; H302			
111-46-6	2,2'-oxybisethanol; diethylene glycol			0-15 %
	203-872-2	603-140-00-6		
	Acute Tox. 4; H302			
3164-85-0	Potassium 2-ethyl hexanoate			1-<5 %
	221-625-7		*	
	Repr. 2, Skin Irrit. 2, Eye Dam. 1; H361d H315 H318			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Keep people at a distance and stay on the windward side. Remove casualty to fresh air and keep warm and at rest.

After inhalation

Keep people at a distance and stay on the windward side. If unconscious place in recovery position and seek medical advice.

After contact with skin

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes

After eye contact: Rinse immediately carefully and thoroughly with eye-bath or water. Consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Induce vomiting when the affected person is not unconscious. Medical treatment necessary.

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

No information available.

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

Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings. alcohol resistant foam. Carbon dioxide (CO₂)
Extinguishing powder Water mist

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Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Non-flammable.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately.

Do not allow entering drains or surface water.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Keep away from heat.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

Hints on joint storage

No special measures are necessary.

7.3. Specific end use(s)

engine coolant

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

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Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
111-46-6	2,2'-Oxydiethanol	23	101		TWA (8 h)	WEL
107-21-1	Ethane-1,2-diol, vapour	20	52		TWA (8 h)	WEL
		40	104		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	DNEL type	Exposure route	Effect	Value
3164-85-0	Potassium 2-ethyl hexanoate				
		Worker DNEL, long-term	inhalation	systemic	32 mg/m ³
		Worker DNEL, long-term	dermal	systemic	12 mg/kg bw/day
		Consumer DNEL, long-term	inhalation	systemic	8 mg/m ³
		Consumer DNEL, long-term	dermal	systemic	6 mg/kg bw/day
		Consumer DNEL, long-term	oral	systemic	2,5 mg/kg bw/day

PNEC values

CAS No	Substance	Environmental compartment	Value
3164-85-0	Potassium 2-ethyl hexanoate		
		Freshwater	0,36 mg/l
		Freshwater sediment	6,37 mg/l
		Marine sediment	0,637 mg/l
		Soil	1,06 mg/l

8.2. Exposure controls**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Wear eye protection/face protection.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing.

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Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid	
Colour:	yellow	
Odour:	none	
pH-Value:		7,5

Changes in the physical state

Melting point:		-12 °C
Initial boiling point and boiling range:		170 °C
Flash point:		> 111 °C

Flammability

Solid:		not applicable
Gas:		not applicable
Lower explosion limits:		not determined
Upper explosion limits:		not determined

Auto-ignition temperature

Solid:		not applicable
Gas:		not applicable
Decomposition temperature:		not determined

Oxidizing properties

Not oxidising.		
Vapour pressure:		8 hPa
Density (at 20 °C):		1,11 g/cm ³
Water solubility:		easily soluble

Solubility in other solvents

not determined		
Partition coefficient:		-1,36
Vapour density:		not determined
Evaporation rate:		not determined

9.2. Other information

Solid content:		not determined
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SECTION 10: Stability and reactivity**10.1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

none

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10.5. Incompatible materials

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Oxidising agent, strong

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

Harmful if swallowed.

ATEmix calculated

ATE (oral) 454,6 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
107-21-1	ethanediol; ethylene glycol				
	oral	ATE mg/kg	500		
	dermal	LD50 mg/kg	10600	Rabbit	GESTIS
111-46-6	2,2'-oxybisethanol; diethylene glycol				
	oral	ATE mg/kg	500		
	dermal	LD50 mg/kg	11890	Rabbit	

Irritation and corrosivity

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

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of damaging the unborn child. (Potassium 2-ethyl hexanoate)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: 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

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

Aspiration hazard

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

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

SECTION 12: Ecological information**12.1. Toxicity**

The product is not: Ecotoxic.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
111-46-6	2,2'-oxybisethanol; diethylene glycol					
	Acute fish toxicity	LC50 mg/l	> 32000	96 h	Gambusia affinis	

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
107-21-1	ethanediol; ethylene glycol	-1,36
111-46-6	2,2'-oxybisethanol; diethylene glycol	-1,98 (25°C)

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.6. Other adverse effects

No information available.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Advice on disposal**

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products

070104 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals; other organic solvents, washing liquids and mother liquors; hazardous waste

Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number:**

No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name:

No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es):

No dangerous good in sense of this transport regulation.

14.4. Packing group:

No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)**14.1. UN number:**

No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name:

No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es):

No dangerous good in sense of this transport regulation.

14.4. Packing group:

No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

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14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

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

No dangerous good in sense of this transport regulation.

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

2004/42/EC (VOC): 100 % (1110 g/l)

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water contaminating class (D): 1 - slightly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information**Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service
 LC50: Lethal concentration, 50%
 LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H361d Suspected of damaging the unborn child.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our

Safety Data Sheet

according to Regulation (EC) No 1907/2006

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present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)