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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

Specific target organ toxicity - repeated exposure: STOT RE 2

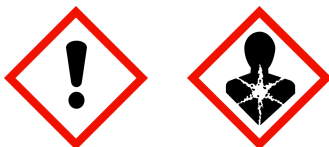
Hazard Statements:

Harmful if swallowed.

May cause damage to organs through prolonged or repeated exposure.

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

ethanediol, ethylene glycol

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

H302

Harmful if swallowed.

H373

May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P501

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

P301+P312

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P314

Get medical advice/attention if you feel unwell.

P270

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

P264

Wash hands thoroughly after handling.

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

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			50-100 %
	203-473-3	603-027-00-1	01-2119456816-28	
	Acute Tox. 4, STOT RE 2; H302 H373			
1303-96-4	disodium tetraborate decahydrate; borax decahydrate			2,5-5 %
	215-540-4	005-011-01-1		
	Repr. 1B; H360FD			
7732-18-5	water			1-2,5 %
	213-791-2			
1310-73-2	sodium hydroxide; caustic soda			0,1-<1 %
	215-185-5	011-002-00-6		
	Skin Corr. 1A; H314			
64665-57-2	Sodium 4(or 5)-methyl-1H-benzotriazolide			0,1-<1 %
	265-004-9			
	Acute Tox. 4, Skin Corr. 1, Aquatic Chronic 2; H302 H314 H411			

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

Remove casualty to fresh air and keep warm and at rest. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After contact with skin

Remove contaminated, saturated clothing immediately. After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. 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

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5.1. Extinguishing media**Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

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.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

7.2. Conditions for safe storage, including any incompatibilities**Hints on joint storage**

No special measures are necessary.

Further information on storage conditions

Store at temperatures not exceeding 40 °C/ °F.

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
1303-96-4	Disodium tetraborate, decahydrate	-	5		TWA (8 h)	WEL
107-21-1	Ethane-1,2-diol, vapour	20	52		TWA (8 h)	WEL
		40	104		STEL (15 min)	WEL
1310-73-2	Sodium hydroxide	-	2		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
107-21-1	ethanediol, ethylene glycol			
Worker DNEL, long-term		inhalation	local	35 mg/m ³
Worker DNEL, long-term		dermal	systemic	106 mg/kg bw/day
Consumer DNEL, long-term		inhalation	local	7 mg/m ³
Consumer DNEL, long-term		dermal	systemic	53 mg/kg bw/day

PNEC values

CAS No	Substance	Value
107-21-1	ethanediol, ethylene glycol	
	Environmental compartment	
	Freshwater	10 mg/l
	Marine water	1 mg/l
	Freshwater sediment	37 mg/kg
	Marine sediment	3,7 mg/kg
	Soil	1,53 mg/kg
64665-57-2	Sodium 4(or 5)-methyl-1H-benzotriazolide	
	Marine water	0,008 mg/l
	Marine sediment	0,025 mg/kg
	Soil	0,0024 mg/kg

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.

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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. DIN EN 374

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. A2, A2/P2, ABEK

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

Physical state:	Liquid	
Colour:	yellow	
Odour:	odourless	
pH-Value:		not determined

Changes in the physical state

Initial boiling point and boiling range:	196 °C
Flash point:	116 °C

Flammability

Solid:	not applicable
Gas:	not applicable
Lower explosion limits:	3,2 vol. %
Upper explosion limits:	28 vol. %

Auto-ignition temperature

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

Oxidizing properties

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

Solubility in other solvents

not determined	
Partition coefficient:	not determined
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.

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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

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

10.5. Incompatible materials

Oxidising agent, strong acids. Bases.

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) 500,1 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
107-21-1	ethanediol, ethylene glycol				
	oral	ATE 500 mg/kg			
	dermal	LD50 10600 mg/kg	Rabbit	GESTIS	
64665-57-2	Sodium 4(or 5)-methyl-1H-benzotriazolide				
	oral	ATE 500 mg/kg			

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

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 through prolonged or repeated exposure. (ethanediol, ethylene glycol)

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].

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
107-21-1	ethanediol, ethylene glycol					
	Acute fish toxicity	LC50 mg/l	72860	96 h	Pimephales promelas (fathead minnow)	Experimental data
1310-73-2	sodium hydroxide; caustic soda					
	Acute fish toxicity	LC50 mg/l	45,4	96 h	Onchorhynchus mykiss	

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
1303-96-4	disodium tetraborate decahydrate; borax decahydrate	-1,53

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

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

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

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

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**

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
disodium tetraborate decahydrate; borax decahydrate

Restrictions on use (REACH, annex XVII):

Entry 30: disodium tetraborate decahydrate; borax decahydrate

2004/42/EC (VOC): 99,99 %

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): 2 - clearly 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%

Safety Data Sheet

according to Regulation (EC) No 1907/2006

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Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Further Information

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