CLARIANT

Safety Data Sheet in accordance with Regulation (EU) No.453/2010

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Substance key: SXR024717 Revision Date: 09.04.2013

Version: 4 - 2 / EU Date of printing: 26.04.2013

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

1.1. Product identifier

Trade name

ANTIFROGEN N

Material number: 107601

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

Relevant identified uses of the substance or mixture

Industry sector : Functional Fluids
Type of use : Functional Fluids
Brine for refrigeration

Exposure scenarios: see section 15.2.

1.3. Details of the supplier of the safety data sheet

Identification of the company

Clariant Produkte (Deutschland) GmbH

65926 Frankfurt am Main

Telephone no.: +49 69 305 18000

Information about the substance/mixture

Corp Product Stewardship

e-mail: MSDS.CorpPS_BU_ICS@clariant.com

1.4. Emergency telephone number

00800-5121 5121 (24 h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according CLP regulation (Regulation (EC) No. 1272/2008, as amended)

Hazard class	s Hazard	category H-phra	ase
Acute toxicity	/ Category	y 4 Harmf	ul if swallowed.

Classification according EC Directive (67/548/EEC or 1999/45/EC, as amended)

Category of danger/Category	Hazard symbol	R - phrases
	Harmful	Harmful if swallowed.

2.2. Label elements

Labelling in accordance with EC-Directives (67/548/EEC or 1999/45/EC, as amended)

hazard warning labelling compulsory, Classification according to the calculation procedure of the Dangerous Preparations Directive (1999/45/EC).



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Symbols/Indications of danger



Harmful

R phrases

22 Harmful if swallowed.

S phrases

2 Keep out of the reach of children. 24/25 Avoid contact with skin and eyes.

2.3. Other hazards

No additional hazards are known except those derived from the labelling.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Monoethylene glycol (1,2-ethane diol) with corrosion inhibitors

Hazardous ingredients

Ethanediol

Concentration: >= 90 - <= 95 %

CAS number: 107-21-1

EC number: 203-473-3

Index Number 603-027-00-1

REACH - Registration 01-2119456816-28, 01-2119456816-28-0000, 01-2119456816number according to 28-0003, 01-2119456816-28-XXXX

article 20(3):

Classification hazard substance EC

Xn	Harmful	R 22
GHS classification EC		
Specific target organ toxicity - Repeated exposure	Category 2	H373
Acute toxicity	Category 4	H302

The text of the R-phrases is shown in section 16.

The text of the H-phrases is shown in section 16.

SECTION 4: First aid measures



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4.1. Description of first aid measures

General information

Remove soiled or soaked clothing immediately

After inhalation

In the event of symptoms seek medical advice.

After contact with skin

In case of contact with skin wash off immediately with plenty of water

After contact with eyes

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice

After ingestion

Summon a doctor immediately.

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

Symptoms

No symptoms known currently.

Hazards

No hazards known at this time.

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

Treatment

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

water spray jet alcohol-resistant foam carbon dioxide dry powder

5.2. Special hazards arising from the substance or mixture

In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO) Nitrous gases (NOx)

5.3. Advice for firefighters

Special protective equipment for firefighting

Use self-contained breathing apparatus

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures



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Ensure adequate ventilation.

Wear suitable personal protective equipment.

6.2. Environmental precautions

Do not allow to enter drains or waterways

6.3. Methods and material for containment and cleaning up

Pick up with absorbent material (eg sand, kieselgur, acid binder, universal binder, sawdust). Dispose of as prescribed

6.4. Reference to other sections

Additional information

Information regarding Safe handling, see chapter 7.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Open and handle container with care.

Provide good ventilation of working area (local exhaust ventilation if necessary).

Hygiene measures

Keep away from foodstuffs and beverages.

Advice on protection against fire and explosion

Observe the general rules of industrial fire protection

7.2. Conditions for safe storage, including any incompatibilities

Advice on storage compatibility

Do not store with alkalies

Do not store with strong oxidizing agents

7.3. Specific end use(s)

No further recommendations.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values

ethylene glycol

EC number: 203-473-3 CAS number: 107-21-1

Regulatory basis / Regulatory list	Revision	Type of value	Values	Remarks
Europe. Commission Directive	2000-06-16	Limit Value -	52 mg/m3	
2000/39/EC establishing a first list of		eight hours	20 ppm	
indicative occupational exposure limit				
values				
EU. Commission Directive 2000/39/EC				



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establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC.				
Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values EU. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC.	2000-06-16	Short term exposure limit	104 mg/m3 40 ppm	

DNEL/DMEL values

Ethanediol

EC number: 203-473-3 CAS number: 107-21-1

Route of exposure	Personnel	Exposure time/Effect	Value	Remarks
Dermal	Worker	Long term/systemic effects	106 mg/kg	DNEL
			bw/day	
Inhalation	Worker	Long term/local effects	35 mg/m3	DNEL
Dermal	General population	Long term/systemic effects	53 mg/kg	DNEL
			bw/day	
Inhalation	General population	Long term/local effects	7 mg/m3	

PNEC values

Ethanediol

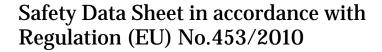
EC number: 203-473-3 CAS number: 107-21-1

Environmental compartment	Personnel/Exposure time/Effect	Value
Water (fresh water)		10 mg/l
Water (sea water)		1 mg/l
Water (intermittent release)		10 mg/l
Sediment (fresh water)		20,9 mg/kg sediment dw
Soil		1,53 mg/kg soil dw
STP		199,5 mg/l

8.2. Exposure controls

General protective measures

Do not inhale vapours Avoid contact with eyes and skin





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Respiratory protection: Use respiratory protection in case of insufficient exhaust

ventilation or prolonged exposure Full mask to standard DIN EN 136

Filter A (organic gases and vapours) to standard DIN EN 141 The use of filter apparatus presupposes that the environment atmosphere contains at least 17% oxygen by volume, and does not exceed the maximum gas concentration, usually 0.5% by volume. Relevant guidelines to be considered include EN 136/141/143/371/372 as well as other national

regulations.

Hand protection : For long-term exposure:

Butyl rubber gloves

Minimum breakthrough time / gloves: 480 min

Minimum thickness / gloves 0,7 mm

For short-term exposure (splash protection):

Nitrile rubber gloves.

Minimum breakthrough time / gloves : 30 min

Minimum thickness / gloves 0,4 mm

These types of protective gloves are offered by various manufacturers. Please note the manufacturers´ detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.

Eye protection : Depending on the risk, wear sufficient eye protection (safety

glasses with side protection or goggles, and if necessary, face

shield.)

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form: Liquid

Particle size : Not applicable

Colour: yellow

Odour: slightly perceptible

Odour threshold: not tested.

pH value : approx. 8 (20 °C, 100 g/l)

Method: DIN 19268

Melting point : -32 °C

Method: DIN 51583

Boiling temperature : approx. 165 °C (1.013 mbar)

Method: ASTM D 1120

Boiling point : 166 °C (1.013 mbar)

Method: ASTM D 1120

Flash point: 119 °C

Method: ASTM D6450 (closed cup)



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Evaporation rate: not tested.

Lower explosion limit: 3 %(V)

Data relate to solvent

Upper explosive limit :not tested.Combustion number :Not applicableMinimum ignition energy :not tested.

Vapour pressure : < 0,01 kPa (20 °C)

Method: Calculated by Syracuse.

Vapour density relative to air : not tested. Solubility in water : (20 °C)

miscible in all proportions

Soluble in ...: fat

not tested.

Octanol/water partition coefficient (log Pow):

Not applicable

Ignition temperature : > 400 °C

Method: DIN 51794

Self-ignition temperature : Not applicable
Thermal decomposition : > 300 °C

Method: DSC

Measurement under nitrogen No decomposition upto 300 °C.

Viscosity (dynamic): 20,3 mPa.s (20 °C)
Viscosity (kinematic): 20,3 mm2/s (20 °C)
Method: DIN 51562

Method : Birt 01002

Explosive properties : Explosive according to EU supply regulations : no data

Oxidizing properties : Not applicable

9.2. Other information

Density: 1,1138 g/cm3 (20 °C)

Method: DIN 51757

Bulk density: Not applicable
Surface tension: 33,8 mN/m

Further information

The product is hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

See section 10.3. "Possibility of hazardous reactions"



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10.2. Chemical stability

Under normal conditions the product is stable.

10.3. Possibility of hazardous reactions

Reactions with alkalies.

Reactions with oxidising agents.

Stable.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

not known

10.6. Hazardous decomposition products

When handled and stored appropriately, no dangerous decomposition products are known

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information related to the product itself:

Acute oral toxicity: not tested.

Acute dermal toxicity: LD50 > 3.500 mg/kg (mouse)

Data relate to main component.

Acute inhalation toxicity: LC50 > 2.5 mg/l (6 h, rat)

Data relate to the main component

Irritant effect on skin: non-irritant (rabbit)

Data relate to main component

Irritant effect on eyes : non-irritant (rabbit eye)

Data relate to main component

Sensitization: non-sensitizing (Guinea pig)

Method: Magnusson/Kligman Data relate to main component

Repeated dose toxicity: Sub-acute oral toxicity

Route of application: gavage

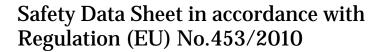
NOAEL: 200 mg/kg (Rats, male/female)

Method: OECD Guide-line 407

Repeated Dose Toxicity (subchronic study)

Route of application: oral feed NOAEL: 150 mg/kg (Rats, male) Method: OECD Guide-line 408 Sub-acute dermal toxicity Route of application: dermal NOAEL: 2,22 mg/kg (dog, male)

Method: OECD Guide-line 410





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Data relate to the main component

Assessment of mutagenicity: It is concluded that the product is not mutagenic based on

evaluation of several mutagenicity tests.

Data relate to main component

Assessment of No indications of carcinogenic effects are available from long-

carcinogenicity: term trials.

Data relate to main component

Data relate to main component

Assessment of toxicity to

reproduction:

No reproductive toxicity to be expected.

Assessment of teratogenicity: No indications of toxic effects were observed in reproduction

studies in animals.

Data relate to main component

Specific target organ toxicity

(STOT) - single exposure :

not tested.

Specific target organ toxicity

not tested.

(STOT) - repeated exposure :

Remarks

Vapours and mists cause irritation/burns to eyes and the respiratory tract

There is a possibility of kidney damage

Poisoning affects the central nervous system

The product was classified on the basis of the calculation procedure of the Dangerous

Preparations Directive (1999/45/EC).

Information related to the component: Ethanediol

Acute oral toxicity: LD50 4.700 mg/kg (rat)

Acute toxicity estimate 500 mg/kg

Method: Converted acute toxicity point estimate

Source: Acute toxicity point estimate based on EU GHS

classification data

SECTION 12: Ecological information

12.1. Toxicity

Information related to the product itself:

Fish toxicity: LC0 1.000 mg/l (golden orfe)

LL50 > 100 mg/l (96 h, Zebra fish (Danio rerio))

Method: OECD 203

By analogy with a similar product.

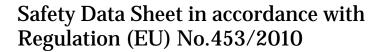
Daphnia toxicity: EC50 > 100 mg/l (48 h, Daphnia magna)

Method: OECD 202

Information relates to the main component.

Algae toxicity: EC50 6.500 - 13.000 mg/l (96 h, Selenastrum capricornutum)

Information relates to the main component.





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Bacteria toxicity: EC20 > 1.995 mg/l (30 min, activated sludge)

Method: ISO 8192

Information relates to the main component.

12.2. Persistence and degradability

Information related to the product itself:

Biodegradability: 90 - 100 % (10 d)

Method: OECD 301 A

The product is readily biodegradable according to OECD

criteria.

Information relates to the main component.

12.3. Bioaccumulative potential

Information related to the product itself:

Bioaccumulation: not tested.

12.4. Mobility in soil

Information related to the product itself:

Transport and distribution

not tested.

between environmental

compartments:

12.5. Results of PBT and vPvB assessment

Information related to the product itself:

After consideration of all available toxicity and ecotoxicity data it is concluded that the substance does not fulfil the PBT or vPvB criteria.

Data relate to the main component

12.6. Other adverse effects

Information related to the product itself:

Additional ecotoxicological remarks

If handled correctly it causes no disturbance in treatment plants.

The product was classified according to the calculation method of the EU Dangerous

Preparations Directive.

SECTION 13: Disposal considerations

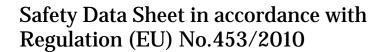
13.1. Waste treatment methods

Product

Dispose of in accordance with local authority regulations

Uncleaned packaging

Packaging that cannot be cleaned should be disposed of as product waste Uncontaminated packaging may be reused





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SECTION 14: Transport information

Section 14.1. to 14.5.

ADR not restricted
ADN not restricted
RID not restricted
IATA not restricted
IMDG not restricted

14.6. Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code (International Bulk Chemicals Code)

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

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

Volatile organic compounds

(VOC)

Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to

the use of organic solvents in certain activities and

installations

Evaluation: According to the composition the product contains no VOC component as defined by Directive 1999/13/EC.

Volatile organic compounds

(VOC)

Directive 2004/42/EC

Evaluation: According to the composition, the product contains no VOC components as defined by Directive 2004/42/EC.

Other regulations

Apart from the data/regulations specified in this chapter, no further information is available concerning safety, health and environmental protection.

15.2. Chemical safety assessment

Chemical Safety Assessments (CSAs) are available for one or more of the component substances contained in this product.

Exposure scenarios - links

Please select the specified addresses from the internet in order to see the exposure scenarios.

URL	Short title
https://reachdialogsystem.clariant.com/ESDocs/EXS000005.pdf	Monoethylene glycol - all
	exposure scenarios



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SECTION 16: Other information

Observe national and local legal requirements

Text of the R-phrases assigned to the ingredients/components mentioned in section 3:

22 Harmful if swallowed.

List of the text of the hazard statements mentioned section 3 (H-phrases):

H302 Harmful if swallowed.

H373 May cause damage to organs through prolonged or repeated exposure.

Legend

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

AOX Adsorbable organic bound halogens

CAS Chemical Abstracts Service

DMEL Derived Minimal Effect Level (genotoxic substances)

DNEL Derived No Effect Level

EC50 Half maximal effective concentration

GHS Globally Harmonized System

IATA International Air Transport Association
IMDG International Maritime Dangerous Goods

LC50 Lethal Concentration 50%

LD50 Lethal Dose 50%

MARPOL International Convention for the Prevention of Pollution From Ships

NOAEC No Observed Adverse Effect Concentration

NOAEL
NO Observed Adverse Effect Level
NOEC
Non Observed Effect Concentration
OEL
Occupational Exposure Limit
PBT
Persistent, Bioaccumulative, Toxic
PEC
Predicted Environmental Concentration
PNEC
Predicted No Effect Concentration

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals
RID International Rule for Transport of Dangerous Substances by Railway

SVHC Substances of Very High Concern

vPvB very Persistent and very Bioaccumulative

Decimal notation: "thousands" places are identified with a dot (for example, "2.000 mg/kg" means "two thousand mg/kg"). Decimal places are identified with a comma (for example, "1,35 g/cm3" means "one point three five g/cm3").

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