



ANTIFROGEN N

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Substance key: SXR024717

Revision Date: 09.04.2013

Version : 4 - 2 / EU

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

1.1. Product identifier

Trade name

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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 : 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_ICCS@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	Hazard category	H-phrases
Acute toxicity	Category 4	Harmful 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).

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

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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

Ethenediol

Concentration : $\geq 90 - \leq 95$ %

CAS number : 107-21-1

EC number: 203-473-3

Index Number 603-027-00-1

REACH - Registration number according to article 20(3): 01-2119456816-28, 01-2119456816-28-0000, 01-2119456816-28-0003, 01-2119456816-28-XXXX

Classification hazard substance EC

Xn	Harmful	R 22
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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 2000/39/EC establishing a first list of indicative occupational exposure limit values EU. Commission Directive 2000/39/EC	2000-06-16	Limit Value - eight hours	52 mg/m3 20 ppm	

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

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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 bw/day	DNEL
Inhalation	Worker	Long term/local effects	35 mg/m3	DNEL
Dermal	General population	Long term/systemic effects	53 mg/kg bw/day	DNEL
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 applicable
Minimum 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 mm ² /s (20 °C) Method : DIN 51562
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 alkalis.
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

	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 carcinogenicity :	No indications of carcinogenic effects are available from long-term trials. Data relate to main component
Assessment of toxicity to reproduction :	No reproductive toxicity to be expected. Data relate to main component
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 (STOT) - repeated exposure :	not tested.

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 between environmental compartments : not tested.

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

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

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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changes in our products and applicable national and international regulations and laws, the status of our products could change. Material Safety Data Sheets providing safety precautions, that should be observed when handling or storing Clariant products, are available upon request and are provided in compliance with applicable law. You should obtain and review the applicable Material Safety Data Sheet information before handling any of these products. For additional information, please contact Clariant.