

ANTIFROGEN N

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Substance key: SXR024717

Revision Date: 06/24/2022

Version : 4 - 8 / USA

Date of printing :10/20/2022

SECTION 1. IDENTIFICATION

Identification of the company:

Clariant Produkte (Deutschland) GmbH
Frankfurt am Main, 65926
Telephone No.: +49 69 305 18000

Information of the substance/preparation:

Product Stewardship, +1-704-331-7710
e-mail: SDS.NORAM@clariant.com

Emergency tel. number: +1 800-424-9300 CHEMTREC

Trade name:**ANTIFROGEN N****Material number:**

107601

Synonyms:

Product Has No Synonyms

Primary product use:

Brine for refrigeration

Chemical family:

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 4

Eye irritation : Category 2A

Specific target organ toxicity : Category 2 (Kidney)
- repeated exposure (Oral)**GHS label elements**

Hazard pictograms :



Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements : **Prevention:**
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear eye protection/ face protection.

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Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Ethenediol	107-21-1	$\geq 90 - \leq 100$
Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	$\geq 1 - < 5$
Sodium nitrate	7631-99-4	$\geq 0.1 - < 1$

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Remove/ Take off immediately all contaminated clothing.
Get medical advice/ attention if you feel unwell.
- If inhaled : Move the victim to fresh air.
Give oxygen or artificial respiration if needed.
Get immediate medical advice/ attention.
- In case of skin contact : Remove contaminated clothing and shoes.
Wash off with soap and plenty of water.
Wash off immediately with plenty of water for at least 15 minutes.
Get medical attention if irritation develops and persists.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,
for at least 15 minutes.
Get immediate medical advice/ attention.
- If swallowed : Rinse mouth.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.

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Get medical advice/ attention.

Most important symptoms and effects, both acute and delayed : The possible symptoms known are those derived from the labelling (see section 2).
No additional symptoms are known.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray jet
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry powder

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : None known.

Further information : Wear positive pressure self-contained breathing apparatus (SCBA) and full protective equipment.

Special protective equipment for firefighters : Self-contained breathing apparatus

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation.
Wear suitable protective equipment.
Contain spill. Ensure adequate ventilation and wear appropriate personal protective equipment. Collect onto inert absorbent. Place in sealable container. Do not allow to contaminate water sources or sewers.

Environmental precautions : Do not allow to enter drains or waterways

Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Can be landfilled or incinerated, when in compliance with local regulations.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Observe the general rules of industrial fire protection

Advice on safe handling : Avoid contact with skin and eyes.

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Further information on storage conditions : Keep container closed.

Materials to avoid : Do not store with alkalis
Do not store with strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethenediol	107-21-1	C	50 ppm 125 mg/m3	OSHA P0
		TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m3	ACGIH

Engineering measures : A system of local and/or general exhaust is recommended where employee exposures are at or above Occupational Exposure Limits (OEL).

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Remarks : Butyl rubber or nitrile.

Eye protection : Safety glasses with side-shields

Skin and body protection : Wear protective clothing, including long sleeves and gloves, to prevent skin contact.

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Protective measures : Do not inhale vapours
Avoid contact with skin and eyes.

Hygiene measures : Keep away from food and drink.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid

Colour : yellow

Odour : slightly perceptible

Odour Threshold : no data available

pH : approx. 8 (68 °F / 20 °C)
Concentration: 10 %
Method: DIN 19268

Melting point : -26 °F / -32 °C
Method: DIN 51583

Boiling point : 331 °F / 166 °C
(1,013 hPa)
Method: ASTM D 1120

Flash point : 246 °F / 119 °C

Method: ASTM D6450 (closed cup)

Flammability (solid, gas) : Not applicable

Self-ignition : no data available

Upper explosion limit / upper flammability limit : no data available

Lower explosion limit / Lower flammability limit : 3 %(V)
Data relate to solvent

Vapour pressure : < 0.01 kPa (68 °F / 20 °C)
Method: Calculated by Syracuse.

Relative vapour density : no data available

Density : 1.1138 g/cm³ (68 °F / 20 °C)
Method: DIN 51757

Solubility(ies)

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Water solubility	: completely miscible (68 °F / 20 °C)
Solubility in other solvents	: Not applicable
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: > 752 °F / > 400 °C Method: DIN 51794
Decomposition temperature	: > 572 °F / > 300 °C Method: DSC Measurement under nitrogen No decomposition up to 300 °C.
Viscosity	
Viscosity, dynamic	: 20.3 mPa.s (68 °F / 20 °C)
Viscosity, kinematic	: 20.3 mm ² /s (68 °F / 20 °C) Method: DIN 51562
Explosive properties	: Not explosive Method: Expert judgement
Oxidizing properties	: The substance or mixture is not classified as oxidizing. Method: Expert judgement
Surface tension	: 33.8 mN/m
Molecular weight	: Not applicable
Metal corrosion rate	: < 6.25 mm/a
Particle size	: Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions. hygroscopic
Possibility of hazardous reactions	: Reactions with oxidising agents. Stable
Conditions to avoid	: None known.
Incompatible materials	: not known
Hazardous decomposition	: When handled and stored appropriately, no dangerous

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products

decomposition products are known

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity**Product:**

- Acute oral toxicity : Acute toxicity estimate: 528.84 mg/kg
Method: Calculation method
- Acute inhalation toxicity : LC50 (Rat, male and female): > 2.5 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
Remarks: Information refers to the main component.
- Acute dermal toxicity : LD50 (Mouse, male and female): > 3,500 mg/kg
Remarks: Information refers to the main component.

Components:**Ethanediol:**

- Acute oral toxicity : LD50 (Rat, male and female): Method: Other
GLP: no
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat, male and female): > 2.5 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
Method: Other
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Mouse, male and female): > 3,500 mg/kg
Method: Other
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

Hexanoic acid, 3,5,5-trimethyl-:

- Acute oral toxicity : LD50 (Rat, male and female): 1,160 mg/kg
Method: OECD Test Guideline 401
GLP: no data available
- Acute inhalation toxicity : Remarks: no data available

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Acute dermal toxicity : Remarks: no data available

Sodium nitrate:

Acute oral toxicity : LD50 (Rat, male and female): ca. 3,430 mg/kg
Method: OECD Test Guideline 401
GLP: no
Remarks: No significant adverse effects were reported

Acute inhalation toxicity : Remarks: Not applicable

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Remarks: By analogy with a product of similar composition

Skin corrosion/irritation**Product:**

Species: Rabbit
Result: No skin irritation
Remarks: Information refers to the main component.

Components:**Ethanediol:**

Species: Rabbit
Exposure time: 20 h
Method: Other
Result: No skin irritation
GLP: no

Hexanoic acid, 3,5,5-trimethyl-:

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: Irritating to skin.
GLP: no data available

Sodium nitrate:

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: no
Remarks: By analogy with a product of similar composition

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Serious eye damage/eye irritation**Components:****Ethanediol:**

Species: Rabbit
Result: No eye irritation
Exposure time: 24 h
Method: Other
GLP: no

Hexanoic acid, 3,5,5-trimethyl-:

Species: Rabbit
Result: Risk of serious damage to eyes.
Exposure time: 72 h
Method: OECD Test Guideline 405
GLP: no data available

Sodium nitrate:

Species: Rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405
GLP: yes

Respiratory or skin sensitisation**Product:**

Test Type: Guinea pig maximization test
Species: Guinea pig
Method: Magnusson/Kligman
Result: non-sensitizing
Remarks: Information refers to the main component.

Components:**Ethanediol:**

Test Type: Maximisation Test
Exposure routes: Dermal
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Not a skin sensitizer.
GLP: yes

Assessment: Harmful if swallowed.

Hexanoic acid, 3,5,5-trimethyl-:

Test Type: Maximisation Test
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Not a skin sensitizer.
GLP: yes

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Assessment: Harmful if swallowed., Causes skin irritation., Causes serious eye damage.

Sodium nitrate:

Test Type: Local lymph node assay (LLNA)

Exposure routes: Dermal

Species: Mouse

Method: OECD Test Guideline 429

Result: Not a skin sensitizer.

GLP: yes

Assessment: Causes serious eye irritation.

Germ cell mutagenicity**Product:**

Germ cell mutagenicity - : It is concluded that the product is not mutagenic based on
Assessment evaluation of several mutagenicity tests.

Information refers to the main component.

Components:**Ethanediol:**

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 33 - 5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Ames test
Test system: Escherichia coli
Concentration: 33 - 5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: Other
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476

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Result: negative

GLP: yes

Genotoxicity in vivo

: Test Type: Dominant lethal assay
Species: Rat (male and female)
Strain: Fischer F344
Application Route: oral (feed)
Exposure time: 3 generation
Dose: 40 - 200 - 1000 mg/kg
Method: Other
Result: negative
GLP: no

Germ cell mutagenicity -
Assessment

: It is concluded that the product is not mutagenic based on
evaluation of several mutagenicity tests.

Hexanoic acid, 3,5,5-trimethyl-:

Genotoxicity in vitro

: Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: In vitro gene mutation study in mammalian cells
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Germ cell mutagenicity -
Assessment

: In vitro tests did not show mutagenic effects

Sodium nitrate:

Genotoxicity in vitro

: Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: <=5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: No information available.

Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes

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Concentration: 10 - 850 µg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Concentration: <=5000 µg/ml
Metabolic activation: without
Method: Other
Result: positive
GLP: No information available.

Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis test (UDS) in testicular cells
Species: Mouse (male)
Strain: C3H x 101
Application Route: oral (gavage)
Exposure time: 3 times, 17 d
Dose: 600 - 1200 mg/kg
Method: Other
Result: negative
GLP: No information available.

Test Type: Micronucleus test
Species: Mouse (male)
Strain: Swiss Webster
Application Route: oral (gavage)
Exposure time: 2 times, 24 h
Dose: 108-323-969-2906 mg/kg
Method: Other
Result: positive
GLP: No information available.

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity**Product:**

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

Information refers to the main component.

Components:**Ethanediol:**

Species: Mouse, (male and female)
Application Route: oral (feed)
Exposure time: 2 a
Dose: 6250-12500-25000-50000 ppm

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Group: yes
Frequency of Treatment: daily
NOAEL: 1,500 mg/kg bw/day
Method: Other
GLP: yes

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Hexanoic acid, 3,5,5-trimethyl-:

Remarks: This information is not available.

Carcinogenicity - Assessment : No information available.

Sodium nitrate:

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

IARC

Group 2A: Probably carcinogenic to humans

Sodium nitrate 7631-99-4

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Product:**

Reproductive toxicity - Assessment : No indications of toxic effects were observed in reproduction studies in animals.

No reproductive toxicity to be expected.

Information refers to the main component.

Information refers to the main component.

Components:**Ethanediol:**

Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Strain: Fischer F344
Application Route: oral (feed)
Dose: 40 - 200 - 1000
General Toxicity - Parent: NOAEL: > 1,000 mg/kg body weight

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General Toxicity F1: NOAEL: > 1,000 mg/kg body weight
General Toxicity F2: NOAEL: > 1,000 mg/kg body weight
Method: Other
GLP: no

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, female
Strain: Sprague-Dawley
Application Route: oral (gavage)
Dose: 150 - 500 - 1000 - 2500 mg/kg
Duration of Single Treatment: 9 d
General Toxicity Maternal: NOEL: 1,500 mg/kg body weight
Teratogenicity: NOEL: 150 mg/kg body weight
Method: Other
GLP: yes

Reproductive toxicity - Assessment : No reproductive toxicity to be expected.
No teratogenic effects to be expected.

Hexanoic acid, 3,5,5-trimethyl-:

Effects on foetal development : Test Type: Pre-natal
Species: Rat
Strain: wistar
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic development were detected.
GLP: yes

Reproductive toxicity - Assessment : No reproductive toxicity to be expected.
Animal testing did not show any effects on foetal development.

Sodium nitrate:

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: wistar
Application Route: oral (gavage)
Dose: 0, 250, 750, and 1,500 mg/kg/
General Toxicity - Parent: NOAEL: >= 1,500 mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes
Remarks: By analogy with a product of similar composition

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: oral (gavage)
Dose: 0, 250, 750, and 1,500 mg/kg/
Duration of Single Treatment: 53 d
General Toxicity Maternal: NOAEL: >= 1,500 mg/kg body weight

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Teratogenicity: NOAEL: $\geq 1,500$ mg/kg body weight
Developmental Toxicity: NOAEL: $\geq 1,500$ mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes
Remarks: By analogy with a product of similar composition

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
No teratogenic effects to be expected.

STOT - single exposure**Product:**

Remarks: no data available

Components:**Ethanediol:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Hexanoic acid, 3,5,5-trimethyl-:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Sodium nitrate:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure**Product:**

Remarks: no data available

Components:**Ethanediol:**

Exposure routes: Oral

Target Organs: Kidney

Assessment: May cause damage to organs through prolonged or repeated exposure.

Hexanoic acid, 3,5,5-trimethyl-:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Sodium nitrate:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

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Repeated dose toxicity**Product:**

Species: Rat, male and female

NOAEL: 200 mg/kg

Application Route: oral (gavage)

Method: OECD Test Guideline 407

Remarks: Information refers to the main component.

Species: Rat, male

NOAEL: 150 mg/kg

Application Route: oral (feed)

Method: OECD Test Guideline 408

Remarks: Information refers to the main component.

Species: Dog, male

NOAEL: 2.22 mg/kg

Application Route: Dermal

Method: OECD Test Guideline 410

Remarks: Information refers to the main component.

Components:**Ethanediol:**

Species: Rat, male

NOAEL: 150 mg/kg bw/day

Application Route: oral (feed)

Exposure time: 16 w

Number of exposures: daily

Dose: 50 - 150 - 500 - 1000 mg/kg

Group: yes

Method: OECD Test Guideline 408

GLP: No information available.

Species: Dog, male

NOAEL: 2.200 - 4.400 mg/kg bw/day

Application Route: Dermal

Exposure time: 4 w

Number of exposures: daily

Dose: 2 - 4 mL/kg bw

Group: yes

Method: OECD Test Guideline 410

GLP: yes

Species: Rat, male and female

NOAEL: 200 mg/kg bw/day

Application Route: oral (gavage)

Exposure time: 33 d

Number of exposures: daily

Dose: 220, 660, 2000 mg/kg bw/day

Group: yes

Method: OECD Test Guideline 407

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Species: Rat, male
NOAEL: 150 mg/kg bw/day
Application Route: oral (feed)
Exposure time: 12 months
Number of exposures: daily
Dose: 50, 150, 300, 400 mg/kg bw/day
Group: yes
Method: OECD Test Guideline 452

Repeated dose toxicity - : Harmful if swallowed.
Assessment

Hexanoic acid, 3,5,5-trimethyl-:

Species: Rat, male and female
NOAEL: 5 mg/kg
Application Route: Oral
Method: OECD Test Guideline 408
GLP: yes

Repeated dose toxicity - : Harmful if swallowed., Causes skin irritation., Causes serious
Assessment eye damage.

Sodium nitrate:

Species: Rat, male and female
NOAEL: >= 1,500 mg/kg
Application Route: oral (gavage)
Exposure time: 28 d
Number of exposures: daily
Dose: 250 - 750 - 1500 mg/kg
Group: yes
Method: OECD Test Guideline 422
GLP: yes
Remarks: By analogy with a product of similar composition

Repeated dose toxicity - : Causes serious eye irritation.
Assessment

Aspiration toxicity**Product:**

no data available

Components:**Ethanediol:**

No aspiration toxicity classification

Hexanoic acid, 3,5,5-trimethyl-:

No aspiration toxicity classification

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Sodium nitrate:

No aspiration toxicity classification

Experience with human exposure**Product:**

General Information : The possible symptoms known are those derived from the labelling (see section 2).

Further information**Product:**

Remarks: Kidney injury may occur.

Remarks: Poisoning affects the central nervous system

Remarks: The classification was made by the conventional (calculation) method of the CLP Regulation (EC) No 1272/2008.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

- Toxicity to fish : LC0 (Leuciscus idus (Golden orfe)): 1,000 mg/l
LL50 (Danio rerio (zebra fish)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: By analogy with a product of similar composition
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Information refers to the main component.
- Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 6,500 - 13,000 mg/l
Exposure time: 96 h
Remarks: Information refers to the main component.
- Toxicity to microorganisms : EC20 (activated sludge): > 1,995 mg/l
Exposure time: 30 min
Method: ISO 8192
Remarks: Information refers to the main component.

Components:**Ethanediol:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 72,860 mg/l

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Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: EPA
GLP: no
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 6,500 - 13,000 mg/l
End point: Growth rate
Exposure time: 7 d
Test Type: static test
Analytical monitoring: no data available
Method: EPA
GLP: No information available.

Toxicity to fish (Chronic toxicity) : Chronic Toxicity Value (Fish): 2,629 mg/l
End point: Other
Exposure time: 30 d
Method: Other
GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia spec.): 8,590 mg/l
End point: Reproduction rate
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to microorganisms : EC20 (activated sludge, domestic): > 1,995 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 0.5 h
Analytical monitoring: no
Method: ISO 8192
GLP: no

Hexanoic acid, 3,5,5-trimethyl-

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 122 mg/l
End point: mortality

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Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 68 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 81 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 10 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : Remarks: no data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: no data available

Toxicity to microorganisms : EC50 (activated sludge of a predominantly domestic sewage): 470 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition
Method: OECD Test Guideline 209
GLP: no

Sodium nitrate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203

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GLP: yes

Remarks: By analogy with a product of similar composition

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 8,609 mg/l
End point: Immobilization
Exposure time: 24 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 202
GLP: no

Toxicity to algae/aquatic plants : ErC50 (Marine Diatom): > 1,700 mg/l
End point: Growth rate
Exposure time: 10 d
Test Type: static test
Analytical monitoring: yes
Method: Other
GLP: no
Remarks: By analogy with a product of similar composition

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 157 mg/l
End point: Other
Exposure time: 32 d
Test Type: flow-through test
Analytical monitoring: yes
Method: Other

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: not required

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

Persistence and degradability**Product:**

Biodegradability : Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A
Remarks: Readily biodegradable, according to appropriate OECD test.
Information refers to the main component.

Components:**Ethanediol:**

Biodegradability : aerobic

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Inoculum: activated sludge
Concentration: 53 mg/l
Dissolved organic carbon (DOC)
Result: Readily biodegradable.
Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A
GLP: yes

Hexanoic acid, 3,5,5-trimethyl-:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 30 mg/l
Dissolved organic carbon (DOC)
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 21 d
Method: OECD Test Guideline 301A
GLP: yes

Stability in water : Remarks: no data available

Sodium nitrate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential**Product:**

Bioaccumulation : Remarks: no data available

Components:**Ethanediol:**

Bioaccumulation : Remarks: Due to the low logPow bioaccumulation is not expected

Partition coefficient: n-octanol/water : log Pow: -1.36
Method: estimated
GLP: no

Hexanoic acid, 3,5,5-trimethyl-:

Bioaccumulation : Bioconcentration factor (BCF): 3.1 - 7
Exposure time: 42 d
Method: OECD Test Guideline 305C
GLP: no
Remarks: Accumulation in aquatic organisms is unlikely.

Partition coefficient: n-octanol/water : log Pow: 3.2 (77 °F / 25 °C)
pH: 3

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Method: OECD Test Guideline 117
GLP: yes

Mobility in soil**Product:**

Distribution among : Remarks: no data available
environmental compartments

Components:**Ethanediol:**

Distribution among : Adsorption/Soil
environmental compartments Medium: water - soil
log Koc: 0
Method: other (calculated)

Hexanoic acid, 3,5,5-trimethyl-:

Distribution among : Remarks: no data available
environmental compartments

Other adverse effects**Product:**

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

Remarks: Information refers to the main component.

Additional ecological : If handled correctly it causes no disturbance in treatment
information plants.
The classification was made by the conventional (calculation)
method of the CLP Regulation (EC) No 1272/2008.

Components:**Ethanediol:**

Environmental fate and : not available
pathways

Results of PBT and vPvB : This substance is not considered to be persistent,
assessment bioaccumulating and toxic (PBT).

Additional ecological : Do not allow to enter ground water, waterways or waste water.
information

Hexanoic acid, 3,5,5-trimethyl-:

Results of PBT and vPvB : The substance is not identified as a PBT or as a vPvB
assessment substance.

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Sodium nitrate:

Environmental fate and pathways : not available

Results of PBT and vPvB assessment : Remarks: Not relevant for inorganic substances

Additional ecological information : Do not allow to enter ground water, waterways or waste water.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**RCRA - Resource Conservation and Recovery Authorization Act Waste Code : This product, if discarded as sold, is not a Federal RCRA hazardous waste.
: NONE

Waste from residues : Dispose of this product in accordance with all applicable local, state and federal regulations.

Contaminated packaging : Packaging that cannot be cleaned should be disposed of as product waste

SECTION 14. TRANSPORT INFORMATION

DOT not restricted

IATA not restricted

IMDG not restricted

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Ethenediol	107-21-1	5000	5361

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

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SARA 313

: The following components are subject to reporting levels established by SARA Title III, Section 313:

Ethanediol 107-21-1 >= 90 - <= 100 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Ethanediol 107-21-1 >= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Ethanediol 107-21-1 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Sodium hydroxide 1310-73-2 >= 0.1 - < 1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Sodium hydroxide 1310-73-2 >= 0.1 - < 1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

The components of this product are reported in the following inventories:

TSCA : All chemical substances in this product are either listed as active on the TSCA Inventory or are in compliance with a TSCA Inventory exemption., A component of this product is not listed on the TSCA Inventory. The component meets the definition of polymer as found in 40 CFR 723.250 and thereby is exempt from certain Premanufacture Notification requirements of TSCA.

SECTION 16. OTHER INFORMATION**Further information**

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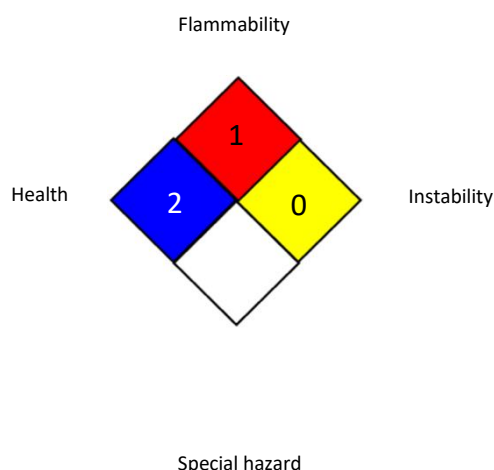
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NFPA 704:



Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
OSHA P0	: USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
OSHA P0 / C	: Ceiling limit

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure

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Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Observe national and local legal requirements
For additional information, contact Product Stewardship.

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