

**DIESEL BIOCIDES CETANE IMPROVER &
INJECTION CLEANER 250 ML**

Version	Revision Date:	SDS Number:	Date of last issue: 29.05.2023
8.0	23.06.2024	10678512-00008	Date of first issue: 22.01.2014

Section 1: Identification

Product name : DIESEL BIOCIDES CETANE IMPROVER & INJECTION CLEANER 250 ML

Product code : 0893 569 250

Manufacturer or supplier's details

Company : Wurth NewZealand Ltd

Address : 99 McLaughlins Road
Wiri, Auckland 2104

Telephone : +64 9 262 3040

Emergency telephone number : 0800 764 766

E-mail address : prodsafe@wurth.com

Telefax : +64 9 262 3030

Recommended use of the chemical and restrictions on use

Recommended use : Fuel additive
Biocidal product

Restrictions on use : Not applicable

Section 2: Hazard identification**GHS Classification**

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 1

Skin sensitisation : Category 1

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Germ cell mutagenicity : Category 2

Carcinogenicity : Category 1


Specific target organ toxicity - repeated exposure : Category 2 (Liver, spleen, Bone marrow)

Aspiration hazard : Category 1

Hazardous to the aquatic environment - acute hazard : Category 1

Hazardous to the aquatic environment - chronic hazard : Category 1

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H373 May cause damage to organs (Liver, spleen, Bone marrow) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.

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

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P302 + P352 IF ON SKIN: Wash with plenty of water.

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P331 Do NOT induce vomiting.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P391 Collect spillage.

Storage:

P403 + P233 + P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool.

P405 Store locked up.

Disposal:

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

Other hazards which do not result in classification

Vapours may form explosive mixture with air.

Section 3: Composition/information on ingredients

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Distillates (petroleum), straight-run middle	64741-44-2	>= 50 -< 70
2-Ethylhexyl nitrate	27247-96-7	>= 30 -< 50
Benzalkonium chloride	8001-54-5	>= 1 -< 2.5
N,N'-Methylenebismorpholine	5625-90-1	>= 1 -< 3
2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol	95-19-2	>= 0.25 -< 1

Section 4: First-aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.

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- When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention immediately.
- If swallowed : If swallowed, DO NOT induce vomiting.
If vomiting occurs have person lean forward.
Call a physician or poison control centre immediately.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
Toxic if inhaled.
Suspected of causing genetic defects.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- || Notes to physician : Treat symptomatically and supportively.

Section 5: Fire-fighting measures

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing : High volume water jet

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media

- Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.
Flash back possible over considerable distance.
Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
Chlorine compounds
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
- Hazchem Code : 3Z
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Section 6: Accidental release measures

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapours/mists with a water spray jet.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items

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employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

Section 7: Handling and storage

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Keep away from water.
Protect from moisture.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.
- Conditions for safe storage : Keep in properly labelled containers.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:
Explosives

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Section 8: Exposure controls/personal protection

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Morpholine	110-91-8	WES-TWA	20 ppm 71 mg/m ³	NZ OEL
	Further information: Skin absorption			
		TWA	20 ppm	ACGIH
Formaldehyde	50-00-0	WES-STEL	0.6 ppm	NZ OEL
	Further information: Skin sensitiser, Known or presumed human carcinogen			
		TWA	0.1 ppm	ACGIH
		STEL	0.3 ppm	ACGIH

Engineering measures : Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates, inorganic gas/vapour and organic vapour type

Hand protection

Material : PVC
Break through time : ≥ 480 min
Glove thickness : ≥ 0.2 mm

Material : Nitrile rubber
Break through time : ≥ 480 min
Glove thickness : ≥ 0.2 mm

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the

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aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

- Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
If splashes are likely to occur, wear:
Face-shield
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Section 9: Physical and chemical properties

- Appearance : liquid
- Colour : clear, red, brown
- Odour : characteristic
- Odour Threshold : No data available
- pH : No data available
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : No data available
- Flash point : 63 - 64 °C
Method: Pensky-Martens closed cup
- Evaporation rate : No data available
- Flammability (solid, gas) : Not applicable
- Flammability (liquids) : No data available

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Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : 0.87 - 0.91

Density : 0.89 g/cm³ (20 °C)

Solubility(ies)
Water solubility : partly miscible

Partition coefficient: n-octanol/water : Not applicable

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, kinematic : < 20.5 mm²/s (40 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Particle characteristics
Particle size : Not applicable

Section 10: Stability and reactivity

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Combustible liquid.
Vapours may form explosive mixture with air.
Can react with strong oxidizing agents.
Hazardous decomposition products will be formed upon contact with water or humid air.

Conditions to avoid : Exposure to moisture
Heat, flames and sparks.

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Incompatible materials : Oxidizing agents
Water

Hazardous decomposition products

Contact with water or humid air : Morpholine
Formaldehyde

Section 11: Toxicological information

Exposure routes : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed.
Toxic if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: 1,414 mg/kg
Method: Calculation method

Acute inhalation toxicity : Assessment: The substance/mixture is not toxic on inhalation
as defined by dangerous goods regulations.

Acute toxicity estimate: 3 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:**Distillates (petroleum), straight-run middle:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 1.78 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal
toxicity

2-Ethylhexyl nitrate:

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Acute oral toxicity : LD50 (Rat): > 9,600 mg/kg

Acute toxicity estimate: 500 mg/kg
Method: Expert judgement

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Test atmosphere: vapour
Method: Expert judgement

Acute dermal toxicity : LD50 (Rabbit): > 4,800 mg/kg

Acute toxicity estimate: 1,100 mg/kg
Method: Expert judgement

Benzalkonium chloride:

Acute oral toxicity : LD50 (Rat): 240 mg/kg

Acute inhalation toxicity : LC50 (Rat, male): > 0.05 - 0.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: Corrosive to the respiratory tract.
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat, female): 704 mg/kg

N,N'-Methylenebismorpholine:

Acute oral toxicity : LD50 (Rat): 500 - 2,000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat): > 1 - 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : Acute toxicity estimate: > 1,000 - 2,000 mg/kg
Method: Expert judgement

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Acute oral toxicity : LD50 (Rat): > 300 - 2,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.
Remarks: Based on data from similar materials

Skin corrosion/irritation

Causes skin irritation.

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Components:**Distillates (petroleum), straight-run middle:**

Species : Rabbit
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

2-Ethylhexyl nitrate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

Benzalkonium chloride:

Species : Human
Result : Corrosive after 4 hours or less of exposure

N,N'-Methylenbismorpholine:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Corrosive after 3 minutes to 1 hour of exposure

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Corrosive after 1 to 4 hours of exposure
Remarks : Based on data from similar materials

Serious eye damage/eye irritation

Causes serious eye damage.

Components:**Distillates (petroleum), straight-run middle:**

Species : Rabbit
Result : No eye irritation

2-Ethylhexyl nitrate:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Benzalkonium chloride:

Species : Rabbit

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Result : Irreversible effects on the eye

N,N'-Methylenebismorpholine:

Result : Irreversible effects on the eye
Remarks : Based on skin corrosivity.

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Species : Rabbit
Result : Irreversible effects on the eye
Remarks : Based on data from similar materials

Respiratory or skin sensitisation**Skin sensitisation**

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:**Distillates (petroleum), straight-run middle:**

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

2-Ethylhexyl nitrate:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Benzalkonium chloride:

Test Type : Human repeat insult patch test (HRIPT)
Exposure routes : Skin contact
Species : Humans
Result : negative

N,N'-Methylenebismorpholine:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive
Remarks : Based on data from similar materials

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Assessment : Probability or evidence of skin sensitisation in humans

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Test Type : Maurer optimisation test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

Chronic toxicity**Germ cell mutagenicity**

Suspected of causing genetic defects.

Components:**Distillates (petroleum), straight-run middle:**

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 475
Result: negative

2-Ethylhexyl nitrate:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Benzalkonium chloride:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

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Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

N,N'-Methylenebismorpholine:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: positive

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Inhalation
Result: positive
Remarks: Based on data from similar materials

Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 486
Result: negative

Germ cell mutagenicity - Assessment : Positive results from in vitro mammalian mutagenicity assays, chemical structure activity relationship to known germ cell mutagens

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

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Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Remarks: Based on data from similar materials

Carcinogenicity

May cause cancer.

Components:**Benzalkonium chloride:**

Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
Method : OECD Test Guideline 453
Result : negative
Remarks : Based on data from similar materials

Species : Mouse
Application Route : Skin contact
Exposure time : 80 weeks
Result : negative

Species : Rabbit
Application Route : Skin contact
Exposure time : 90 weeks
Result : negative

N,N'-Methylenebismorpholine:

Species : Rat
Application Route : inhalation (gas)
Exposure time : 28 Months
Result : positive
Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

Not classified based on available information.

Components:**Distillates (petroleum), straight-run middle:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

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Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Skin contact
Result: negative
Remarks: Based on data from similar materials

2-Ethylhexyl nitrate:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 421
Result: negative

Benzalkonium chloride:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rabbit
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

N,N'-Methylenebismorpholine:

Effects on foetal development : Test Type: Embryo-foetal development
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat

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Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

May cause damage to organs (Liver, spleen, Bone marrow) through prolonged or repeated exposure.

Components:**Distillates (petroleum), straight-run middle:**

Exposure routes : Skin contact
Target Organs : Liver, spleen, Bone marrow
Assessment : Shown to produce significant health effects in animals at concentrations of >20 to 200 mg/kg bw.

Benzalkonium chloride:

Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity**Components:****Distillates (petroleum), straight-run middle:**

Species : Rat
LOAEL : 125 mg/kg
Application Route : Skin contact
Exposure time : 90 Days
Remarks : Based on data from similar materials

2-Ethylhexyl nitrate:

Species : Rabbit
NOAEL : 500 mg/kg
Application Route : Skin contact
Exposure time : 90 Days

Benzalkonium chloride:

Species : Rat
NOAEL : >= 100 mg/kg
Application Route : Ingestion
Exposure time : 12 Weeks

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

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Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:

Distillates (petroleum), straight-run middle:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Section 12: Ecological information

Ecotoxicity

Components:

Distillates (petroleum), straight-run middle:

Toxicity to fish	:	LL50 : > 1 - 10 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 10 - 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
		NOELR (Pseudokirchneriella subcapitata (green algae)): > 1 - 10 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials

2-Ethylhexyl nitrate:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.83 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

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Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 1.45 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		EC10 (Desmodesmus subspicatus (green algae)): 1.11 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
M-Factor (Acute aquatic toxicity)	:	1
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Benzalkonium chloride:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0.28 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.0056 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Chlorella pyrenoidosa (algae)): 0.09 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0.032 mg/l Exposure time: 34 d

N,N'-Methylenbismorpholine:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 24 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 9.5 mg/l Exposure time: 92 h Method: OECD Test Guideline 201

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NOEC (Pseudokirchneriella subcapitata (green algae)): 2 mg/l
Exposure time: 92 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0.1 - 1 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.01 - 0.1 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.01 - 0.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): > 0.01 - 0.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): > 10 - 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Persistence and degradability
Components:
Distillates (petroleum), straight-run middle:

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

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2-Ethylhexyl nitrate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Benzalkonium chloride:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301D
Remarks: Based on data from similar materials

N,N'-Methylenebismorpholine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 93 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

Bioaccumulative potential**Components:****2-Ethylhexyl nitrate:**

Bioaccumulation : Species: *Oryzias latipes* (Orange-red killifish)
Bioconcentration factor (BCF): > 500

Partition coefficient: n-octanol/water : log Pow: 5.24
Method: OECD Test Guideline 117

Benzalkonium chloride:

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)
Bioconcentration factor (BCF): < 500
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 1.692
Remarks: Calculation

N,N'-Methylenebismorpholine:

Partition coefficient: n-octanol/water : log Pow: < 0.3

2-(2-Heptadecyl-2-imidazolin-1-yl)ethanol:

Partition coefficient: n-octanol/water : log Pow: 7.73

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octanol/water

Remarks: Calculation

Mobility in soil

No data available

Other adverse effects

No data available

Section 13: Disposal considerations
Disposal methods

- | | | |
|------------------------|---|--|
| Waste from residues | : | Do not dispose of waste into sewer.

Dispose of in accordance with local regulations. |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product. |

Section 14: Transport information
International Regulations**UNRTDG**

- | | | |
|---------------------------|---|--|
| UN number | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Benzalkonium chloride, Distillates (petroleum), straight-run middle) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| Environmentally hazardous | : | yes |

IATA-DGR

- | | | |
|--|---|--|
| UN/ID No. | : | UN 3082 |
| Proper shipping name | : | Environmentally hazardous substance, liquid, n.o.s.
(Benzalkonium chloride, Distillates (petroleum), straight-run middle) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | Miscellaneous |
| Packing instruction (cargo aircraft) | : | 964 |
| Packing instruction (passenger aircraft) | : | 964 |

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ger aircraft)
Environmentally hazardous : yes

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Benzalkonium chloride, Distillates (petroleum), straight-run middle)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations
NZS 5433

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Benzalkonium chloride, Distillates (petroleum), straight-run middle)
Class : 9
Packing group : III
Labels : 9
Hazchem Code : 3Z
Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Section 15: Regulatory information
Safety, health and environmental regulations/legislation specific for the substance or mixture
HSNO Approval Number

not allocated

Tolerable Exposure Limits (TEL)

Not applicable

Environmental Exposure Limits (EEL)

Chemical name	Environmental compartment	Reference concentration
benzalkonium chloride	Water	1.3 µg/l

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

NZIoC : All ingredients listed or exempt.

Section 16: Other information

Revision Date : 23.06.2024

Further informationSources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
NZ OEL	: New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
NZ OEL / WES-TWA	: Workplace Exposure Standard - Time Weighted average
NZ OEL / WES-STEEL	: Workplace Exposure Standard - Short-Term Exposure Limit

AiIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; KECl - 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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, Bioaccumu-

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lative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECL - 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

NZ / EN