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

1.1 Product identifier
Orotol® plus Disinfection of suction systems

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

Relevant identified uses
Orotol® plus is a highly effective aldehyde-free concentrate for the simultaneous disinfection, deodorization, cleaning and care of dental suction systems as well as spittoon bowls, being likewise suitable for all amalgam separators.

Product Categories [PC]
PC 0 - Other
Disinfectants

Uses advised against
None, if handled according to order.

Remark
The product is intended for professional use.

1.3 Details of the supplier of the safety data sheet
Supplier (manufacturer/importer/only representative/downstream user/distributor)
orochemie GmbH + Co. KG
Street: Max-Planck-Straße 27
Postal code/city: 70806 Kornwestheim
Telephone: +49 7154 1308-0
Telefax: +49 7154 1308-40
Information contact: DÜRR DENTAL SE, Höpfigheimer Str. 17, 74321 Bietigheim-Bissingen, Germany
Tel: +49 7142 705-0, Fax: +49 7142 705-500, info@duerrdental.com
in Great Britain/Ireland:
DÜRR DENTAL [Products] UK Ltd., 14 Linnell Way - Telford Way Industrial Estate, Kettering Northants NN16 8PS, United Kingdom
Tel: +44 1536 526740, Fax.: +44 1536 526749, info@duerruk.com

1.4 Emergency telephone number
INT: +49 6132 84463 (24 h/7 d)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

Aquatic Chronic 3 ; H412 - Hazardous to the aquatic environment: Chronic 3; Harmful to aquatic life with long lasting effects.
Eye Dam. 1 ; H318 - Serious eye damage/eye irritation: Category 1; Causes serious eye damage.
Skin Corr. 1C ; H314 - Skin corrosion/irritation: Category 1C; Causes severe skin burns and eye damage.
Met. Corr. 1 ; H290 - Corrosive to metals: Category 1; May be corrosive to metals.

Classification procedure
The classification was carried out according to the calculation method of Regulation No. (EC) 1272/2008 [CLP] as well as in-house investigations.

2.2 Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)

Trade name: Orotol® plus Disinfection of suction systems
Revision: 02.01.2018
Print date: 02.01.2018

Corrosion (GHS05)

Signal word
Danger

Hazard components for labelling
DIOCTYL-DIMETHYL AMMONIUM CHLORIDE; CAS No.: 5538-94-3
POTASSIUM HYDROXIDE; CAS No.: 1310-58-3

Hazard statements
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P280 Wear protective gloves and eye/face protection.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P353 Rinse skin with water/shower.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container to hazardous or special waste collection point.

2.3 Other hazards
None

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description
Orotol® plus contains quaternary ammonium compounds, alkaline cleaning agents, complexing agents, special antifoaming agents, fragrances and auxiliary agents in aqueous solution.

Hazardous ingredients
TETRAPHOSPHATE; REACH registration No.: 01-2119489369-18; EC No.: 230-785-7; CAS No.: 7320-34-5
Weight fraction: ≥ 3 - < 8 %
Classification 1272/2008 [CLP]: Eye Irrit. 2; H319

DIOCTYL-DIMETHYL AMMONIUM CHLORIDE; REACH registration No.: -; EC No.: 226-901-0; CAS No.: 5538-94-3
Weight fraction: ≥ 3 - < 5 %
Classification 1272/2008 [CLP]: Flam. Liq. 3; H226 Skin Corr. 1B; H314 Eye Dam. 1; H318 Acute Tox. 4; H302 Aquatic Acute 1; H400

SODIUM ETHYLENEDIAMINETETRAACETATE; REACH registration No.: 01-2119486762-27; EC No.: 200-573-9; CAS No.: 64-02-8
Weight fraction: ≥ 3 - < 5 %
Classification 1272/2008 [CLP]: STOT RE 2; H373 Eye Dam. 1; H318 Acute Tox. 4; H302 Acute Tox. 4; H332

DODECYLDIMETHYLBENZYLAMMONIUM CHLORIDE; REACH registration No.: -; EC No.: 287-089-1; CAS No.: 85499-22-9
Weight fraction: ≥ 0,5 - < 1 %
Classification 1272/2008 [CLP]: Skin Corr. 1B; H314 Eye Dam. 1; H318 Acute Tox. 4; H302 Aquatic Acute 1; H400

POTASSIUM HYDROXIDE; REACH registration No.: 01-2119487136-33; EC No.: 215-181-3; CAS No.: 1310-58-3
Weight fraction: ≥ 0,3 - < 0,7 %
Classification 1272/2008 [CLP]: Met. Corr. 1; H290 Skin Corr. 1A; H314 Eye Dam. 1; H318 Acute Tox. 4; H302

TRISODIUM NITRILOTRIACETATE; REACH registration No.: 01-2119519239-36; EC No.: 225-768-6; CAS No.: 5064-31-3
Weight fraction: < 0,5 %
SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Remove contaminated, saturated clothing immediately. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Following inhalation
Provide fresh air. In case of respiratory tract irritation, consult a physician.

In case of skin contact
Wash with plenty of water. When in doubt or if symptoms are observed, get medical advice.

After eye contact
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion
If swallowed, immediately drink: Water. Never give anything by mouth to an unconscious person or a person with cramps. Do NOT induce vomiting. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
Causes severe skin burns and eye damage.

4.3 Indication of any immediate medical attention and special treatment needed
None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Extinguishing powder Water spray Water mist The product itself does not burn. Co-ordinate firefighting measures to the fire surroundings.

Unsuitable extinguishing media
High power water jet

5.2 Special hazards arising from the substance or mixture
None known.

Hazardous combustion products
None known.

5.3 Advice for firefighters
Adapt protective equipment to surrounding fire.

Special protective equipment for firefighters
Adapt protective equipment to surrounding fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protection equipment. See protective measures under point 7 and 8.
For non-emergency personnel
Use personal protection equipment. See protective measures under point 7 and 8.

For emergency responders
Personal protection equipment
See protective measures under point 7 and 8.

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

6.3 Methods and material for containment and cleaning up
For cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.

Other information
Treat the recovered material as prescribed in the section on waste disposal.

6.4 Reference to other sections
None

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep/Store only in original container. Please note safety instructions and directions for use on the drum. Handle and open container with care. Provide adequate ventilation. Do not breathe vapour/aerosol.

Protective measures
Measures to prevent fire
Usual measures for fire prevention. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep/Store only in original container. Keep container tightly closed. Keep in a cool, well-ventilated place. Do not store in temperatures below 5 °C.

Hints on joint storage
Store the foodstuffs separately.

7.3 Specific end use(s)
None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Occupational exposure limit values
POTASSIUM HYDROXIDE ; CAS No. : 1310-58-3
Limit value type (country of origin) : TLV/STEL ( GB )
Limit value : 2 mg/m³

DNEL/DMEL and PNEC values
There are no data available on the preparation itself.

DNEL/DMEL
Limit value type : DNEL Consumer (systemic) ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 )
Exposure route : Inhalation
Exposure frequency : Long-term (repeated)
Limit value : 0,68 mg/l
Limit value type : DNEL Consumer (systemic) ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 )
Exposure route : Oral
Exposure frequency : Long-term (repeated)
Limit value : & Safety factor : \\
> 70 mg/kg & 24 h \\
Limit value type : & DNEL Consumer (systemic) ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 10.87 mg/m³ \\
Limit value type : & DNEL worker (systemic) ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 2.79 mg/m³ \\
Limit value type : & DNEL/DMEL (Consumer) ( DIOCTYL-DIMETHYL AMMONIUM CHLORIDE ; CAS No. : 5538-94-3 ) \\
Exposure route : & Oral \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 7.5 mg/kg \\
Safety factor : & 24 h \\
Limit value type : & DNEL/DMEL (Consumer) ( DIOCTYL-DIMETHYL AMMONIUM CHLORIDE ; CAS No. : 5538-94-3 ) \\
Exposure route : & Dermal \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 7.5 mg/kg \\
Safety factor : & 24 h \\
Limit value type : & DNEL/DMEL (Industrial) ( DIOCTYL-DIMETHYL AMMONIUM CHLORIDE ; CAS No. : 5538-94-3 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 44 mg/m³ \\
Limit value type : & DNEL/DMEL (Consumer) ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 1.5 mg/m³ \\
Limit value type : & DNEL Consumer (local) ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Short-term (acute) \\
Limit value : & 1.5 mg/m³ \\
Limit value type : & DNEL Consumer (systemic) ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Long-term (repeated) \\
Limit value : & 1.5 mg/m³ \\
Limit value type : & DNEL Consumer (systemic) ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 ) \\
Exposure route : & Inhalation \\
Exposure frequency : & Short-term (acute) \\
Limit value : & 1.5 mg/m³
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)

Trade name: Orotol® plus Disinfection of suction systems
Revision: 02.01.2018
Print date: 02.01.2018

Exposure route: Oral
Exposure frequency: Long-term (repeated)
Limit value: 25 mg/kg
Safety factor: 24 h
Limit value type: DNEL worker (local) (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)

Exposure route: Inhalation
Exposure frequency: Long-term (repeated)
Limit value: 2,5 mg/m³
Limit value type: DNEL worker (local) (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)

Exposure route: Inhalation
Exposure frequency: Short-term (acute)
Limit value: 2,5 mg/m³
Limit value type: DNEL worker (systemic) (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)

Exposure route: Inhalation
Exposure frequency: Long-term
Limit value: 2,5 mg/m³
Limit value type: DNEL worker (systemic) (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)

Exposure route: Oral
Exposure frequency: Long-term (repeated)
Limit value: 0,5 mg/kg
Safety factor: 24 h
Limit value type: DNEL worker (local) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)

Exposure route: Inhalation
Exposure frequency: Short-term (acute)
Limit value: 1,75 mg/m³
Limit value type: DNEL worker (systemic) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)

Exposure route: Oral
Exposure frequency: Long-term (repeated)
Limit value: 0,5 mg/kg
Safety factor: 24 h
Limit value type: DNEL worker (local) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)

Exposure route: Inhalation
Exposure frequency: Short-term (acute)
Limit value: 5,25 mg/m³
Limit value type: DNEL worker (local) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)

Exposure route: Inhalation
Exposure frequency: Long-term (repeated)
Limit value: 3,5 mg/m³
Limit value type: DNEL worker (systemic) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)
<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Limit value</th>
<th>Limit value type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term (acute)</td>
<td>5.25 mg/m³</td>
<td>DNEL worker (systemic) (TRISODIUM NITRILOTRIACETATE; CAS No.: 5064-31-3)</td>
</tr>
<tr>
<td>Long-term (repeated)</td>
<td>3.5 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**PNEC**

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Limit value</th>
<th>Limit value type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC aquatic, freshwater</td>
<td>0.05 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC aquatic, intermittent release</td>
<td>0.5 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC aquatic, marine water</td>
<td>0.005 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC sewage treatment plant (STP)</td>
<td>50 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC (Consumer)</td>
<td>0.0135 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC (Consumer)</td>
<td>0.0014 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC (Consumer)</td>
<td>1 mg/kg</td>
<td></td>
</tr>
<tr>
<td>PNEC (Consumer)</td>
<td>0.8 mg/kg</td>
<td></td>
</tr>
<tr>
<td>PNEC aquatic, freshwater</td>
<td>2.8 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC aquatic, intermittent release</td>
<td>1.6 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC aquatic, marine water</td>
<td>0.28 mg/l</td>
<td></td>
</tr>
<tr>
<td>PNEC (Industrial)</td>
<td>0.95 mg/kg</td>
<td></td>
</tr>
<tr>
<td>PNEC sewage treatment plant (STP)</td>
<td>3000 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Personal protection equipment

Eye/face protection
Eye glasses with side protection DIN EN 166

Skin protection

Hand protection
Short-term exposure (Level 2: < 30 min): disposable gloves to EN374 category III, e.g. nitrile rubber, material thickness 0.1 mm.
Long-term exposure (Level 6: < 480 min): protective gloves to EN374 category III, e.g. nitrile rubber, material thickness 0.7 mm.
When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits.

Body protection
Body protection: not required.

Respiratory protection
Usually no personal respirative protection necessary.

General health and safety measures
Keep away from food, drink and animal feedingstuffs. Avoid contact with skin, eyes and clothes. Remove contaminated, saturated clothing. Wash hands before breaks and after work. Separate storage of work clothes. When using do not eat, drink, smoke, sniff.

Occupational exposure controls
Technical measures to prevent exposure
Provide adequate ventilation.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: liquid
Colour : yellow  
Odour : Lemon  

Safety relevant basis data  
Melting point/melting range : (1013 hPa) No data available  
Initial boiling point and boiling range : (1013 hPa) approx. 100 °C  
Decomposition temperature : (1013 hPa) No data available  
Flash point : not applicable  
Ignition temperature : not applicable  
Lower explosion limit : not applicable  
Upper explosion limit : not applicable  
Vapour pressure : (50 °C) No data available  
Density : (20 °C) 1,07 - 1,11 g/cm³  
Solvent separation test : (20 °C) < 3 %  
Water solubility : (20 °C) 100 Wt %  
pH value : 12 - 13  
pH : (20 °C / 20 g/l) 10 - 10,5  
log P O/W : (20 °C) < No data available  
Flow time : (20 °C) < 12 s DIN-cup 4 mm  
Odour threshold : No data available  
Maximum VOC content (EC) : 6,6 Wt %  
Oxidising liquids : Not applicable.  
Explosive properties : Not applicable.  
Corrosive to metals : May be corrosive to metals (H290).  

9.2 Other information  
None  

SECTION 10: Stability and reactivity  

10.1 Reactivity  
None, if handled according to order.  

10.2 Chemical stability  
Stable under recommended storage and handling conditions (see section 7). Reactions with acids: development of heat.  

10.3 Possibility of hazardous reactions  
Reactions with acids possible  

10.4 Conditions to avoid  
No information available.  

10.5 Incompatible materials  
Acid  

10.6 Hazardous decomposition products  
None known.  

SECTION 11: Toxicological information  

11.1 Information on toxicological effects  
Acute effects  
Acute oral toxicity  
Parameter : LD50  
Exposure route : Oral  
Species : Rat  
Effective dose : > 2000 mg/kg  
Method : OECD 401  
Parameter : ATEmix calculated  

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Exposure route : Oral
Effective dose : 15151 mg/kg
Parameter : ATE ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 )
Exposure route : Oral
Effective dose : 500 mg/kg
Parameter : ATE ( DODECYLDIMETHYLAMMONIUM CHLORIDE ; CAS No. : 85409-22-9 )
Exposure route : Oral
Effective dose : 500 mg/kg
Parameter : ATE ( POTASSIUM HYDROXIDE ; CAS No. : 1310-58-3 )
Exposure route : Oral
Effective dose : 500 mg/kg
Parameter : ATE ( TRISODIUM NITRILOTRIACETATE ; CAS No. : 5064-31-3 )
Exposure route : Oral
Effective dose : not relevant

Practical experience/human evidence
Causes severe skin burns and eye damage.

Acute dermal toxicity
Parameter : LD50
Exposure route : Dermal
Species : Rat
Effective dose : > 2000 mg/kg
Method : OECD 402
Parameter : ATEmix calculated
Exposure route : Dermal
Effective dose : not relevant

Acute inhalation toxicity
Parameter : ATEmix calculated
Exposure route : Inhalative (vapour)
Effective dose : 333,3 mg/l
Parameter : LC50 ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 )
Exposure route : Inhalation
Species : Rat
Effective dose : > 1,1 mg/l
Method : OECD 403
Parameter : LC50 ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 )
Exposure route : Inhalation
Species : Rat
Effective dose : 1000 - 5000 mg/l
Exposure time : 6 h
Parameter : LC50 ( TRISODIUM NITRILOTRIACETATE ; CAS No. : 5064-31-3 )
Exposure route : Inhalation
Species : Rat
Effective dose : > 5 mg/l
Exposure time : 4 h
Parameter : LC50 ( TRISODIUM NITRILOTRIACETATE ; CAS No. : 5064-31-3 )
Exposure route : Inhalation
Species : Rat
Effective dose : > 4,25 mg/l
Exposure time : 4 h
Method : OECD 403

Irritant and corrosive effects
Rabbit’s eye: no irritation. 2 % solution. Method : OECD 405.

Sensitisation

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
No information available.

11.5 Additional information
The classification was carried out according to the calculation method of Regulation No. (EC) 1272/2008 [CLP] as well as in-house investigations.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity

Acute (short-term) fish toxicity

Parameter: LC50 (TETRASODIUM DIPHOSPHATE; CAS No.: 7320-34-5)
Species: Oncorhynchus mykiss (Rainbow trout)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: > 100 mg/l
Exposure time: 96 h
Method: OECD 203

Parameter: LC50 (DIOCTYL-DIMETHYL AMMONIUM CHLORIDE; CAS No.: 5538-94-3)
Species: Oncorhynchus mykiss (Rainbow trout)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 0,35 mg/l
Exposure time: 96 h

Parameter: LC50 (DIOCTYL-DIMETHYL AMMONIUM CHLORIDE; CAS No.: 5538-94-3)
Species: Lepomis macrochirus (Bluegill)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 0,55 mg/l
Exposure time: 48 h

Parameter: LC50 (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)
Species: Lepomis macrochirus (Bluegill)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 951 mg/l
Exposure time: 96 h

Parameter: LC50 (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)
Species: Leuciscus idus (golden orfe)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 2040 mg/l
Exposure time: 96 h

Parameter: LC50 (SODIUM ETHYLENEDIAMINETETRAACETATE; CAS No.: 64-02-8)
Species: Fish
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: > 100 mg/l
Exposure time: 96 h

Parameter: LC50 (DODECYLDIMETHYLBENZYLAMMONIUM CHLORIDE; CAS No.: 85409-22-9)
Species: Pimephales promelas (fathead minnow)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 0,28 mg/l
Exposure time: 96 h

Parameter: LC50 (POTASSIUM HYDROXIDE; CAS No.: 1310-58-3)
Species: Gambusia affinis (Mosquito fish)
Evaluation parameter: Acute (short-term) fish toxicity
Effective dose: 80 mg/l
Exposure time : 96 h
Parameter : LC50 ( POTASSIUM HYDROXIDE ; CAS No. : 1310-58-3 )
Species : Poecilia reticulata (Guppy)
Evaluation parameter : Acute (short-term) fish toxicity
Effective dose : 165 mg/l
Exposure time : 24 h
Parameter : LC50 ( TRISODIUM NITRILOTRIACETATE ; CAS No. : 5064-31-3 )
Species : Pimephales promelas (fathead minnow)
Evaluation parameter : Acute (short-term) fish toxicity
Effective dose : > 100 mg/l
Exposure time : 96 h
Parameter : LC50 ( EUCALYPTOL ; CAS No. : 470-82-6 )
Species : Pimephales promelas (fathead minnow)
Evaluation parameter : Acute (short-term) fish toxicity
Effective dose : 102 mg/l
Exposure time : 96 h

Chronic (long-term) fish toxicity
Parameter : NOEC
Species : Poecilia reticulata (Guppy)
Evaluation parameter : Chronic (long-term) fish toxicity
Effective dose : 1,1 mg/l
Exposure time : 96 h
Method : OECD 203

Acute (short-term) daphnia toxicity
Parameter : EC50
Species : Daphnia magna (Big water flea)
Evaluation parameter : Acute (short-term) daphnia toxicity
Effective dose : 1,1 mg/l
Exposure time : 48 h
Method : OECD 202

Chronic (long-term) daphnia toxicity
Parameter : NOEC
Species : Daphnia magna (Big water flea)
Evaluation parameter : Chronic (long-term) daphnia toxicity
Effective dose : 0,26 mg/l
Exposure time : 48 h
Method : OECD 202

Acute (short-term) algae toxicity
Parameter : ErC50
Species : Desmodesmus subspicatus
Evaluation parameter : Inhibition of growth rate
Effective dose : 4,42 mg/l
Exposure time : 72 h
Method : OECD 201

Chronic (long-term) algae toxicity
Parameter : NOEC
Species : Desmodesmus subspicatus
Evaluation parameter : Chronic (long-term) algae toxicity
Effective dose : 1,25 mg/l
Exposure time : 96 h
Method : OECD 201

Bacteria toxicity
Parameter : EC50 ( POTASSIUM HYDROXIDE ; CAS No. : 1310-58-3 )
Evaluation parameter : Bacteria toxicity
Effective dose : 22 mg/l
Exposure time : 0,25 h
Parameter : EC50 ( OXYDIPROPANOL ; CAS No. : 25265-71-8 )
Species : Pseudomonas putida
Evaluation parameter : Bacteria toxicity
Effective dose : > 100000 mg/l
Exposure time : 16 h
Parameter : EC50 ( DODECYLDIMETHYLBENZYLAMMONIUM CHLORIDE ; CAS No. : 85409-22-9 )
Evaluation parameter : Bacteria toxicity
Effective dose : 7,75
Exposure time : 3 h
Method : OECD 209
Parameter : EC50 ( TETRASODIUM DIPHOSPHATE ; CAS No. : 7320-34-5 )
Evaluation parameter : Bacteria toxicity
Effective dose : > 1000 mg/l
Exposure time : 3 h
Parameter : EC10 ( OXYDIPROPANOL ; CAS No. : 25265-71-8 )
Species : Pseudomonas putida
Evaluation parameter : Bacteria toxicity
Effective dose : > 1000 mg/l
Exposure time : 16 h

**Sediment toxicity**

**Toxicity to soil macroorganisms**

**Acute earthworm toxicity**

Parameter : LC50 ( SODIUM ETHYLENEDIAMINETETRAACETATE ; CAS No. : 64-02-8 )
Species : Acute earthworm toxicity
Effective dose : 156 mg/kg
Exposure time : 336 h
Method : OECD 207

**Terrestrial toxicity**

**Toxicity to birds**

**Bird reproduction toxicity**

Parameter : Bird reproduction toxicity ( DIOCTYL-DIMETHYL AMMONIUM CHLORIDE ; CAS No. : 5538-94-3 )
Species : Colinus virginianus (bobwhite quail)
Evaluation parameter : Acute and subchronic bird toxicity
Effective dose : 1300 ppm
Exposure time : 192 h
Parameter : Bird reproduction toxicity ( DIOCTYL-DIMETHYL AMMONIUM CHLORIDE ; CAS No. : 5538-94-3 )
Species : Anas platyrhynchos (maillard duck)
Evaluation parameter : Acute and subchronic bird toxicity
Effective dose : > 2500 ppm
Exposure time : 192 h

**Effects in sewage plants**

Technically correct releases of minimal concentrations to adapted biological sewage plants, will not disturb the biodegradability of activated sludge.

**12.2 Persistence and degradability**

**Abiotic degradation**

No data available.

**Biodegradation**

The product is easily biodegradable according to OECD criteria. Method : OECD 301 D.

**12.3 Bioaccumulative potential**

No information available.
12.4 Mobility in soil

**Known or predicted distribution to environmental compartments**

There are no data available on the preparation itself.

**Adsorption/Desorption**

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Other adverse effects

No information available.

12.7 Additional ecotoxicological information

Prevent from flowing into surface water/ground water.

### SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product/Packaging disposal**

**Waste codes/waste designations according to EWC/AVV**

- **Waste code product**
  - Concentrate/larger quantities: 18 01 06* (disinfectant).

**Waste treatment options**

- **Appropriate disposal / Product**
  - Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

- **Appropriate disposal / Package**
  - Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

### SECTION 14: Transport information

14.1 UN number

UN 1719

14.2 UN proper shipping name

**Land transport (ADR/RID)**

CAUSTIC ALKALI LIQUID, N.O.S. (DIOCTYL-DIMETHYL AMMONIUM CHLORIDE · POTASSIUM HYDROXIDE)

**Sea transport (IMDG)**

CAUSTIC ALKALI LIQUID, N.O.S. (DIOCTYL-DIMETHYL AMMONIUM CHLORIDE · POTASSIUM HYDROXIDE)

**Air transport (ICAO-TI / IATA-DGR)**

CAUSTIC ALKALI LIQUID, N.O.S. (DIOCTYL-DIMETHYL AMMONIUM CHLORIDE · POTASSIUM HYDROXIDE)

14.3 Transport hazard class(es)

**Land transport (ADR/RID)**

- **Class(es):** 8
- **Classification code:** C5
- **Hazard Identification number (Kemler No.):** 80
- **Tunnel restriction code:** E
- **Special provisions:** LQ 5 I · E 1
- **Hazard label(s):** 8

**Sea transport (IMDG)**

- **Class(es):** 8
- **EmS-No.:** F-A / S-B
- **Special provisions:** LQ 5 I · E 1
- **Hazard label(s):** 8

**Air transport (ICAO-TI / IATA-DGR)**
Class(es) : 8 / -
Special provisions : E 1
Hazard label(s) : 8

14.4 Packing group
III

14.5 Environmental hazards
Land transport (ADR/RID) : No
Sea transport (IMDG) : No
Air transport (ICAO-TI / IATA-DGR) : No

14.6 Special precautions for user
None

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
Restrictions of occupation
According to directive 94/33/EC, juveniles are only allowed to handle this product as long as all effects of dangerous substances are prevented.

15.2 Chemical safety assessment
For this mixture a chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1 Indication of changes

Environmental hazards

16.2 Abbreviations and acronyms
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimates
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
CMR = Carcinogen, Mutagen or Reproductive toxicant
CO₂ = Carbon dioxide
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EC = European Commission
EC50 = Half maximal effective concentration
EN = European Standard (Norm)
EU = European Union
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
H statement = GHS Hazard statement
IATA = International Air Transport Association ICAO-TI = International Civil Aviation Organization-Technical Instructions
IMDG = International Maritime Dangerous Goods
LC50 = Median lethal concentration
LD50 = Median lethal dose
LogPow = Logarithm of the octanol/water partition coefficient
**Safety Data Sheet**

according to Regulation (EC) No. 1907/2006 (REACH)

| Trade name: | Orotol® plus Disinfection of suction systems |
| Revision: | 02.01.2018 |
| Print date: | 02.01.2018 |
| Version (Revision): | 4.0.1 (4.0.0) |


NOEC/NOEL = No observed effect concentration/level

OECD = Organisation for Economic Co-operation and Development

PBT = Persistent, Bioaccumulative and Toxic

PNEC = Predicted No Effect Concentration

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]

RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail

RMM = Risk Management Measure

RRN = REACH Registration Number

STOT-RE = Specific Target Organ Toxicity - Repeated Exposure

STOT-SE = Specific Target Organ Toxicity - Single Exposure

SVHC = Substances of Very High Concern

TLV/STEL = Threshold limit value/short-term exposure limit

TLV/TWA = Threshold limit value/time weighted average

UN = United Nations

VOC = Volatile Organic Compound

vPvB = Very Persistent and Very Bioaccumulative

**16.3 Key literature references and sources for data**

None

**16.4 Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]**

No information available.

**16.5 Relevant H- and EUH-phrases (Number and full text)**

- **H226** Flammable liquid and vapour.
- **H290** May be corrosive to metals.
- **H302** Harmful if swallowed.
- **H314** Causes severe skin burns and eye damage.
- **H317** May cause an allergic skin reaction.
- **H318** Causes serious eye damage.
- **H319** Causes serious eye irritation.
- **H332** Harmful if inhaled.
- **H351** Suspected of causing cancer.
- **H373** May cause damage to organs through prolonged or repeated exposure.
- **H400** Very toxic to aquatic life.

**16.6 Training advice**

None

**16.7 Additional information**

Notice the directions for use on the label.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.