

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## RELYON VIRKON

Version 1.0      Revision Date: 31.07.2018      SDS Number: 103000008299      Date of last issue: -  
Country / Language: GB / EN(GB)

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

#### 1.1 Product identifier

Trade name : RELYON VIRKON  
Product code : 57768022

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

Use of the Sub-stance/Mixture : Disinfectants

#### 1.3 Details of the supplier of the safety data sheet

Supplier : Antec International Limited  
Windham Road  
Chilton Industrial Estate  
CO10 2XD Sudbury / Suffolk, United Kingdom  
Telephone : +4922188852288

#### 1.4 Emergency telephone number

0870 190 6777. National Chemical Emergency Centre

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### SECTION 2: Hazards identification


#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H315 Causes skin irritation. H318 Causes serious eye damage. H412 Harmful to aquatic life with long lasting effects.

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Precautionary statements :

**Prevention:**  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of water.  
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.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

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

Hazardous components which must be listed on the label:

pentapotassium bis(peroxymonosulphate) bis(sulphate)  
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts  
potassium hydrogensulphate  
dipotassium disulphate

### Additional Labelling

EUH208 Contains dipotassium peroxodisulphate, dipentene. May produce an allergic reaction.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8 274-778-7 01-2119485567-22	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 30 - < 50
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	68411-30-3 270-115-0	Acute Tox. 4; H302 Skin Irrit. 2; H315	>= 10 - < 20

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	01-2119489428-22	Eye Dam. 1; H318 Aquatic Chronic 3; H412	
malic acid	6915-15-7 230-022-8 01-2119906954-31	Eye Irrit. 2; H319	$\geq 1 - < 10$
sulphamidic acid	5329-14-6 226-218-8 016-026-00-0 01-2119488633-28	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 3; H412	$\geq 2,5 - < 10$
sodium toluenesulphonate	12068-03-0 235-088-1	Skin Irrit. 2; H315 Eye Irrit. 2; H319	$\geq 1 - < 10$
potassium hydrogensulphate	7646-93-7 231-594-1 016-056-00-4	Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT SE 3; H335; Respiratory system	$\geq 1 - < 3$
dipotassium peroxodisulphate	7727-21-1 231-781-8 016-061-00-1 01-2119495676-19	Ox. Sol. 3; H272 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335; Respiratory system	$\geq 1 - < 10$
dipotassium disulphate	7790-62-7 232-216-8	Acute Tox. 3; H331 Skin Corr. 1A; H314 Eye Dam. 1; H318	$\geq 1 - < 3$
dipentene	138-86-3 205-341-0 601-029-00-7	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor Aquatic Acute: 1  M-Factor Aquatic Chronic: 1	$\geq 0,1 - < 0,25$

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

General advice : Move out of dangerous area.  
Consult a physician.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.

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- If inhaled : If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : If skin irritation persists, call a physician.  
If on skin, rinse well with water.  
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.  
Do NOT induce vomiting.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.  
Take victim immediately to hospital.

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

None known.

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

Treatment : No special measures required.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : In case of fire, use water spray (fog), foam or dry chemical.
- Unsuitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
High volume water jet

### 5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Sulphur oxides  
Metal oxides  
Carbon dioxide (CO<sub>2</sub>)  
Carbon monoxide  
Nitrogen oxides (NO<sub>x</sub>)  
Halogenated compounds

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### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Use personal protective equipment.  
Avoid dust formation.  
Avoid breathing dust.

### 6.2 Environmental precautions

- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Neutralize with chalk, alkali solution or ammonia.  
Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

- For personal protection see section 8.  
For disposal considerations see section 13.
- 

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Advice on safe handling : Protect from moisture.
- Avoid formation of respirable particles.  
Do not breathe vapours/dust.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
- Hygiene measures : When using do not eat or drink. When using do not smoke.
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Wash hands before breaks and at the end of workday.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Protect from moisture. Combustible substances Strong bases

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully re-sealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

Advice on common storage : Do not store near acids.

Further information on storage stability : Keep in a dry place. No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

Specific use(s) : No data available

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Engineering measures

This information is not available.

#### Personal protective equipment

Eye protection : Eye wash bottle with pure water  
Tightly fitting safety goggles  
Wear face-shield and protective suit for abnormal processing problems.

#### Hand protection

Material : Butyl rubber - IIR  
Wearing time : < 60 min

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations

Skin and body protection : Wear suitable protective clothing.

Dust impervious protective suit  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : Recommended Filter type:  
ABEK-P2-filter

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance : powder

Colour : pink

Odour : pleasant, sweet

Odour Threshold : No data available

pH : 2,35 - 2,65  
Concentration: 1 %

Melting point/freezing point : No data available

Boiling point/boiling range : No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : No data available

Density : 1,07 g/cm<sup>3</sup> (20 °C)

Solubility(ies)  
Water solubility : 65 g/l

Partition coefficient: n-octanol/water : No data available

Ignition temperature : No data available

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Decomposition temperature : > 50 °C

Viscosity : No data available

Explosive properties : No data available

Oxidizing properties : No data available

### 9.2 Other information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

Conditions to avoid : Exposure to moisture

### 10.5 Incompatible materials

Materials to avoid : Incompatible with acids.  
Strong bases  
Combustible substances  
Halogenated compounds  
Oxidizing agents  
brass  
Copper  
Cyanides  
Metal salt.

### 10.6 Hazardous decomposition products

Hazardous decomposition products : Oxygen  
Chlorine  
Sulphur oxides  
Hypochlorites



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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

###### Product:

- Acute oral toxicity : LD50 (Rat): 4.123 mg/kg  
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC50 (Rat): > 3,7 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: the particle size measurements of the product indicate that it is not respirable and therefore not bioavailable by the inhalation route.
- Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg  
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

###### Components:

###### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

- Acute oral toxicity : LD50 (Rat, male and female): 500 mg/kg  
Method: OECD Test Guideline 423
- Acute inhalation toxicity : LC0 (Rat, male): > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Highest producible concentration.
- Acute dermal toxicity : LD50 (Rat, male and female): > 5.000 mg/kg  
Method: OECD Test Guideline 402  
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

###### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

- Acute oral toxicity : LD50 (Rat, male and female): 1.220 mg/kg  
Method: OECD Test Guideline 401
- Acute dermal toxicity : LD50 (Rat, male and female): > 5.000 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Remarks: Extrapolation according to Regulation (EC) No.
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440/2008

### malic acid:

Acute oral toxicity : LD50 (Rat, male and female): 3.500 mg/kg  
Method: OECD Test Guideline 401  
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): > 1,306 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit, female): > 5.000 mg/kg  
Method: OECD Test Guideline 401  
GLP: no

### sulphamidic acid:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): > 5.000 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

### sodium toluenesulphonate:

Acute oral toxicity : LD50 (Rat): 6.500 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

### potassium hydrogensulphate:

Acute oral toxicity : LD50 (Rat): 2.340 mg/kg

### dipotassium peroxodisulphate:

Acute oral toxicity : LD50 (Rat): 700 mg/kg

Acute toxicity estimate: 500 mg/kg  
Method: Converted acute toxicity point estimate

Acute inhalation toxicity : LC0 (Rat): > 2,95 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit): > 10.000 mg/kg

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### **dipotassium disulphate:**

Acute oral toxicity : LD50 (Rat, male): 2.140 mg/kg  
Method: OECD Test Guideline 401  
Remarks: Test results on an analogous product

Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.  
  
Assessment: The component/mixture is toxic after short term inhalation.

### **dipentene:**

Acute oral toxicity : LD50 (Rat): 5.300 mg/kg  
  
Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg

### **Skin corrosion/irritation**

#### **Product:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

#### **Components:**

### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Causes burns.

### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

### **malic acid:**

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

### **sulphamidic acid:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

### **sodium toluenesulphonate:**

Species: Rabbit  
Result: Irritating to skin.

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**potassium hydrogensulphate:**

Assessment: Causes burns.

**dipotassium peroxodisulphate:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

**dipotassium disulphate:**

Assessment: Causes severe burns.

**dipentene:**

Assessment: Irritating to skin.

**Serious eye damage/eye irritation**

**Components:**

**pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Species: Rabbit

Method: OECD Test Guideline 405

Result: Risk of serious damage to eyes.

**Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: Risk of serious damage to eyes.

**malic acid:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: Irritating to eyes.

**sulphamidic acid:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: Irritating to eyes.

**sodium toluenesulphonate:**

Species: Rabbit

Result: Irritating to eyes.

**dipotassium peroxodisulphate:**

Result: Irritating to eyes.

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### **dipotassium disulphate:**

Assessment: Risk of serious damage to eyes.

### **dipentene:**

Species: Rabbit

Result: Irritating to eyes.

### **Respiratory or skin sensitisation**

#### **Product:**

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Did not cause sensitisation on laboratory animals.

Exposure routes: Inhalation

Species: Mammal - species unspecified

Method: Expert judgement

Result: Does not cause respiratory sensitisation.

#### **Components:**

### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Did not cause sensitisation on laboratory animals.

### **malic acid:**

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Did not cause sensitisation on laboratory animals.

GLP: yes

### **sulphamidic acid:**

Result: Did not cause sensitisation on laboratory animals.

### **sodium toluenesulphonate:**

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

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Result: Did not cause sensitisation on laboratory animals.

### **dipotassium peroxodisulphate:**

Exposure routes: Inhalation  
Species: Mammal - species unspecified  
Result: May cause sensitisation by inhalation.

Exposure routes: Skin contact  
Species: Mouse  
Method: OECD Test Guideline 429  
Result: May cause sensitisation by skin contact.

### **dipentene:**

Exposure routes: Dermal  
Species: Guinea pig  
Result: May cause sensitisation by skin contact.

### **Germ cell mutagenicity**

#### **Components:**

#### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Genotoxicity in vitro : Test system: Mammalian-Animal  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: positive  
GLP: yes

Test system: Bacteria  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

Test system: Mammalian-Human  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: positive  
GLP: yes

Genotoxicity in vivo : Species: Mammalian-Animal  
Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative

#### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Genotoxicity in vitro : Test Type: Ames test  
Test system: Bacteria  
Metabolic activation: with and without metabolic activation  
Result: negative

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Genotoxicity in vivo : Test Type: Cytogenetic assay  
Species: Mouse  
Application Route: Oral  
Result: negative

### **malic acid:**

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

### **sulphamidic acid:**

Genotoxicity in vitro : Test system: Mammalian-Human  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative  
GLP: yes

Test system: Mammalian-Animal  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Test system: Bacteria  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

### **sodium toluenesulphonate:**

Genotoxicity in vitro : Remarks: No mutagenic effect.

### **dipotassium peroxodisulphate:**

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

## **Carcinogenicity**

### **Components:**

#### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Species: Rat  
Application Route: Oral  
Exposure time: 2 Years  
Result: negative

## **Reproductive toxicity**

### **Components:**

#### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

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Effects on foetal development : Remarks: No teratogenic or foetotoxic effects were found at all dose levels tested.

### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Effects on foetal development : Species: Rat, female  
Application Route: Oral  
Dose: 600 milligram per kilogram  
Duration of Single Treatment: 15 d  
Remarks: No known significant effects or critical hazards.

### **malic acid:**

Effects on foetal development : Remarks: No known significant effects or critical hazards.

### **STOT - single exposure**

#### **Components:**

#### **potassium hydrogensulphate:**

Assessment: May cause respiratory irritation.

#### **dipotassium peroxodisulphate:**

Assessment: May cause respiratory irritation.

### **Repeated dose toxicity**

#### **Components:**

#### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Species: Rat, male and female  
LOAEL: > 1.000 mg/kg  
Application Route: Oral  
Exposure time: 28 d  
Number of exposures: 7 days/week  
Method: OECD Test Guideline 407  
Remarks: Subacute toxicity

Species: Rat, male and female  
LOAEL: 600 mg/kg  
Application Route: Oral  
Exposure time: 90 d  
Number of exposures: 7 days/week  
Method: OECD Test Guideline 408  
Remarks: Subchronic toxicity

#### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Species: Rat, male and female  
NOAEL: 50 mg/kg  
Application Route: Oral



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Exposure time: 84 d  
Remarks: Subchronic toxicity

### **malic acid:**

Remarks: No known significant effects or critical hazards.

### **sodium toluenesulphonate:**

Species: Rat  
NOAEL: 114 mg/kg  
Application Route: Oral  
Exposure time: 91 d  
Method: OECD Test Guideline 408  
Remarks: Subchronic toxicity

### **Further information**

#### **Product:**

Remarks: No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### **Product:**

- Toxicity to fish : LC50 (Salmo salar (Atlantic salmon)): 24,6 mg/l  
Exposure time: 96 h  
Method: Regulation (EC) No. 440/2008, Annex, C.1
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6,5 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Fresh water
- Toxicity to algae : NOEC (Desmodesmus subspicatus (green algae)): 6,25 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Fresh water

#### **Components:**

##### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 53 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
GLP: yes  
Remarks: Fresh water
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3,5 mg/l  
Exposure time: 48 h
-

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Method: OECD Test Guideline 202  
GLP: yes  
Remarks: Fresh water

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (microalgae)): > 1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

NOEC (Pseudokirchneriella subcapitata (microalgae)): 0,5 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 1,67 mg/l  
Exposure time: 96 h  
Method: OPPTS 850.1075

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2,9 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
GLP: yes  
Remarks: Fresh water

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 10 - 100 mg/l  
Exposure time: 72 h  
NOEC (Chlorella vulgaris (Fresh water algae)): 3,1 mg/l  
Exposure time: 15 d

Toxicity to fish (Chronic toxicity) : NOEC: 1 mg/l  
Exposure time: 28 d  
Species: Lepomis macrochirus (Bluegill sunfish)  
Method: OECD Test Guideline 204  
GLP: no  
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1,18 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211  
GLP: no  
Remarks: Fresh water

### **malic acid:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 100 mg/l

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Exposure time: 96 h  
Method: OECD Test Guideline 203  
GLP: yes  
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 240 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
GLP: yes  
Remarks: Fresh water

Toxicity to algae : EC50 (algae): > 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

NOEC (algae): 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

### **sulphamidic acid:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 70,3 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
GLP: no  
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 71,6 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
GLP: yes  
Remarks: Fresh water

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 48 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes  
Remarks: Fresh water

Toxicity to microorganisms : EC50 : > 200 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
GLP: yes

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Remarks: Fresh water

Toxicity to fish (Chronic toxicity) : NOEC:  $\geq 60$  mg/l  
Exposure time: 34 d  
Species: Danio rerio (zebra fish)  
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 19 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

### **sodium toluenesulphonate:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)):  $> 490$  mg/l  
Exposure time: 96 h  
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)):  $> 318$  mg/l  
Exposure time: 48 h  
Remarks: Fresh water

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 245 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Fresh water

NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l  
Exposure time: 72 h  
Remarks: Fresh water

### **dipotassium peroxodisulphate:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 76,3 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 120 mg/l  
Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (microalgae)): 83,7 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

### **Ecotoxicology Assessment**

Long-term (chronic) aquatic hazard : This product has no known ecotoxicological effects.

### **dipotassium disulphate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 680 mg/l  
Exposure time: 96 h  
Remarks: Fresh water

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- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 720 mg/l  
Exposure time: 48 h  
Remarks: Fresh water
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (microalgae)): 1.492 mg/l  
Exposure time: 96 h  
Remarks: Fresh water
- EC10 (Pseudokirchneriella subcapitata (microalgae)): 656 mg/l  
Exposure time: 96 h  
Remarks: Fresh water
- Toxicity to fish (Chronic toxicity) : NOEC: > 595 mg/l  
Exposure time: 7 Days  
Species: Pimephales promelas (fathead minnow)  
Remarks: Fresh water
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 790 mg/l  
Exposure time: 7 Days  
Species: Ceriodaphnia dubia (Water flea)  
Remarks: Fresh water

### **dipentene:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0,702 mg/l  
Exposure time: 96 h  
Remarks: Fresh water
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,421 mg/l  
Exposure time: 48 h  
Remarks: Fresh water
- M-Factor (Short-term (acute) aquatic hazard) : 1  
:  
:
- M-Factor (Long-term (chronic) aquatic hazard) :  
:  
1

## 12.2 Persistence and degradability

### **Components:**

#### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

- Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

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### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Biodegradability : Test Type: aerobic  
Inoculum: activated sludge  
Concentration: 34,3 mg/l  
Result: Readily biodegradable.  
Biodegradation: 83 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
GLP: yes

### **malic acid:**

Biodegradability : Test Type: aerobic  
Result: Readily biodegradable.  
Biodegradation: 67,5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
GLP: yes

### **sulphamidic acid:**

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

### **sodium toluenesulphonate:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 0 - 2 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

### **dipotassium peroxodisulphate:**

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

### **dipotassium disulphate:**

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

### **dipentene:**

Biodegradability : Result: Not rapidly biodegradable

## 12.3 Bioaccumulative potential

### **Components:**

#### **pentapotassium bis(peroxymonosulphate) bis(sulphate):**

Partition coefficient: n-octanol/water : log Pow: < 0,3  
Method: OECD Test Guideline 117

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### **Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:**

Partition coefficient: n-octanol/water : log Pow: 1,4  
Method: OECD Test Guideline 123

### **malic acid:**

Partition coefficient: n-octanol/water : log Pow: -1,26

### **sulphamidic acid:**

Partition coefficient: n-octanol/water : log Pow: -4,34

### **12.4 Mobility in soil**

No data available

### **12.5 Results of PBT and vPvB assessment**

#### **Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### **12.6 Other adverse effects**

#### **Product:**

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life.  
Harmful to aquatic life with long lasting effects.

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## **SECTION 13: Disposal considerations**

### **13.1 Waste treatment methods**

Product : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

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### SECTION 14: Transport information

#### 14.1 UN number

Not regulated as a dangerous good

#### 14.2 UN proper shipping name

Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

#### 14.4 Packing group

Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user / Additional advice

Hazard statements : Not dangerous cargo.  
Keep dry.  
Keep separated from foodstuffs.

#### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

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### SECTION 15: Regulatory information

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

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

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### 15.2 Chemical safety assessment

not applicable

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### SECTION 16: Other information

#### Full text of H-Statements

H226 : Flammable liquid and vapour.  
H272 : May intensify fire; oxidizer.  
H302 : Harmful if swallowed.  
H314 : Causes severe skin burns and eye damage.  
H315 : Causes skin irritation.  
H317 : May cause an allergic skin reaction.  
H318 : Causes serious eye damage.  
H319 : Causes serious eye irritation.  
H331 : Toxic if inhaled.  
H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 : May cause respiratory irritation.  
H400 : Very toxic to aquatic life.  
H410 : Very toxic to aquatic life with long lasting effects.  
H412 : Harmful to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox. : Acute toxicity  
Aquatic Acute : Short-term (acute) aquatic hazard  
Aquatic Chronic : Long-term (chronic) aquatic hazard  
Eye Dam. : Serious eye damage  
Eye Irrit. : Eye irritation  
Flam. Liq. : Flammable liquids  
Ox. Sol. : Oxidizing solids  
Resp. Sens. : Respiratory sensitisation  
Skin Corr. : Skin corrosion  
Skin Irrit. : Skin irritation  
Skin Sens. : Skin sensitisation  
STOT SE : Specific target organ toxicity - single exposure

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

#### Further information

##### Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Aquatic Chronic 3	H412

##### Classification procedure:

Based on product data or assessment
Calculation method
Calculation method

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to de-

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scribe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.