

# SAFETY DATA SHEET



## RUGBY® 10 G

Version	Revision Date:	SDS Number:	Date of last issue: -
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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

**Product name** RUGBY® 10 G

#### Other means of identification

**Product code** 50002159

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

Use of the Sub-  
stance/Mixture : Insecticide

Recommended restrictions : Use as recommended by the label.  
on use

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

##### Supplier Address

FMC Chemicals (Pty) Ltd  
Company Registration Number: 1988/001451/07  
West End Office Park, Building C  
Cnr. West Ave & Hall Street  
Centurion, 0014

E-mail address: SDS-Info@fmc.com (E-Mail General Information)

#### 1.4 Emergency telephone

For leak, fire, spill or accident emergencies, call:  
South Africa: 0-800-983-611 (CHEMTREC)

Medical emergency:  
For any emergency or poisoning contact: Griffon Poison Information Centre (24 hrs) - +27-(0)-82-446-8946

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

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

Acute toxicity, Category 4 H302: Harmful if swallowed.

Acute toxicity, Category 2 H330: Fatal if inhaled.

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Acute toxicity, Category 2	H310: Fatal in contact with skin.
Skin sensitization, Category 1	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 1	H370: Causes damage to organs.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

### 2.2 Label elements

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

Hazard pictograms :



Signal Word : Danger

Hazard Statements :  
H302 Harmful if swallowed.  
H310 + H330 Fatal in contact with skin or if inhaled.  
H317 May cause an allergic skin reaction.  
H370 Causes damage to organs.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :

#### Prevention:

P260 Do not breathe dust.  
P262 Do not get in eyes, on skin, or on clothing.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing.

#### Response:

P302 + P352 + P310 IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER/ doctor.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.  
P391 Collect spillage.

#### Storage:

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

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Hazardous ingredients which must be listed on the label:

S,S-di-sec-butyl O-ethyl phosphorodithioate

2,2'-oxydiethanol

Naphthenic acids, copper salts

### 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

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
S,S-di-sec-butyl O-ethyl phosphorodithioate	95465-99-9	Acute Tox. 2; H300 Acute Tox. 1; H330 Acute Tox. 1; H310 STOT SE 1; H370 (Central nervous system, Peripheral nervous system) STOT RE 1; H372 (Central nervous system, Peripheral nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 100	>= 10 - < 20
Quartz (SiO <sub>2</sub> )	14808-60-7 238-878-4	STOT RE 1; H372 (Lungs)	>= 1 - < 10
2,2'-oxydiethanol	111-46-6 203-872-2 603-140-00-6	Acute Tox. 4; H302	>= 1 - < 10
Naphthenic acids, copper salts	1338-02-9 215-657-0 029-003-00-5	Flam. Liq. 3; H226 Acute Tox. 3; H301 Aquatic Acute 1; H400 Aquatic Chronic 1;	>= 0.1 - < 0.25

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		H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	
2-ethylhexanoic acid, copper salt	22221-10-9 244-846-0	Acute Tox. 4; H312 Eye Dam. 1; H318 Repr. 2; H361 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	>= 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.
- If inhaled : If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Flush eyes with water as a precaution.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Induce vomiting immediately and call a physician.  
Keep respiratory tract clear.  
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

- Risks : Harmful if swallowed.  
Fatal in contact with skin or if inhaled.  
May cause an allergic skin reaction.  
Causes damage to organs.  
Causes damage to organs through prolonged or repeated exposure.

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

Treatment : Treat symptomatically.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Dry chemical, CO<sub>2</sub>, water spray or regular foam.

Unsuitable extinguishing media : Do not spread spilled material with high-pressure water streams.

**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 : Oxides of phosphorus  
Carbon oxides  
Sulfur oxides

**5.3 Advice for firefighters**

Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.  
Use a water spray to cool fully closed containers.

Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Evacuate personnel to safe areas.  
Use personal protective equipment.  
If it can be safely done, stop the leak.  
Do not touch or walk through the spilled material.  
Avoid dust formation.  
Avoid breathing dust.  
Never return spills in original containers for re-use.  
For disposal considerations see section 13.

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**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 : Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

See sections: 7, 8, 11, 12 and 13.

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**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Advice on safe handling : Avoid formation of respirable particles.  
Do not breathe vapors/dust.  
Avoid exposure - obtain special instructions before use.  
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.  
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.  
  
Normal measures for preventive fire protection.

Hygiene measures : General industrial hygiene practice. Do not breathe dust or spray mist.  
  
Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

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

Requirements for storage areas and containers : 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. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

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### 7.3 Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Quartz (SiO <sub>2</sub> )	14808-60-7	OEL- ML (respirable dust fraction)	0.1 mg/m <sup>3</sup>	ZA OEL
Further information	Occupational Exposure Limits - Maximum Limits For Hazardous Chemical Agents, denotes carcinogenicity, which is based on GHS categorisation, including category 1A, 1B			
		TWA (Respirable dust)	0.1 mg/m <sup>3</sup>	2004/37/EC

#### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Routes of exposure	Potential health effects	Value
2,2'-oxydiethanol	Workers	Inhalation	Long-term local effects	60 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	43 mg/kg
	Consumers	Inhalation	Long-term systemic effects	12 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	12 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	21 mg/kg
Naphthenic acids, copper salts	Workers	Inhalation	Long-term systemic effects	0.63 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	0.36 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term systemic effects	0.16 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	0.18 mg/kg
	Consumers	Oral	Long-term systemic effects	0.18 mg/kg
2-ethylhexanoic acid, copper salt	Workers	Inhalation	Long-term systemic effects	0.69 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	0.390 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.170 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	0.2 mg/kg
	Consumers	Oral	Long-term systemic effects	0.2 mg/kg

#### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
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2,2'-oxydiethanol	Fresh water	10 mg/l
	Sea water	1 mg/l
	Intermittent use/release	10 mg/l
	Sewage treatment plant	199.5 mg/l
	Fresh water sediment	20.9 mg/kg dry weight (d.w.)
	Sea sediment	2.09 mg/kg dry weight (d.w.)
	Soil	1.53 mg/kg dry weight (d.w.)
Naphthenic acids, copper salts	Fresh water	5.62 µg/l
	Sea water	0.562 µg/l
	Fresh water sediment	28 mg/kg
	Sea sediment	2.8 mg/kg
	Soil	5.6 mg/kg
	Sewage treatment plant	130 µg/l
2-ethylhexanoic acid, copper salt	Fresh water	0.04105 mg/l
	Intermittent use/release	0.493 mg/l
	Sea water	0.02737 mg/l
	Sewage treatment plant	1.21 mg/l
	Fresh water sediment	457.9 mg/kg dry weight (d.w.)
	Sea sediment	3557.9 mg/kg dry weight (d.w.)
	Soil	342.1 mg/kg dry weight (d.w.)

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Eye wash bottle with pure water  
Tightly fitting safety goggles

Hand protection  
Material : Protective gloves

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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

Protective measures : Plan first aid action before beginning work with this product.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : granules  
Color : dark brown, black  
Odor : ester-like



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Odor Threshold	:	No data available
pH	:	7.34 Concentration: 5 g/l
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	Not applicable
Density	:	No data available
Solubility(ies) Water solubility	:	emulsifiable
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable

### 9.2 Other information

Particle size	:	300 - 600 µm 95%
Self-ignition	:	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	:	Dust may form explosive mixture in air.
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No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

Conditions to avoid : Avoid extreme temperatures  
Heat, flames and sparks.  
Avoid dust formation.

### 10.5 Incompatible materials

Materials to avoid : Avoid strong acids, bases, and oxidizers.

### 10.6 Hazardous decomposition products

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Harmful if swallowed.

Fatal in contact with skin or if inhaled.

#### Product:

Acute oral toxicity : LD50 (Rat, female): 391 mg/kg  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : Acute toxicity estimate: 0.26 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : LD50 (Rat, female): 143 mg/kg  
Assessment: The component/mixture is highly toxic after single contact with skin.

#### Components:

#### **S,S-di-sec-butyl O-ethyl phosphorodithioate:**

Acute oral toxicity : LD50 (Rat): 37.1 mg/kg  
  
LD50 (Mouse): 71.4 mg/kg  
  
Acute toxicity estimate: 37.1 mg/kg  
Method: Calculation method

Acute inhalation toxicity : LC50 (Rat): 0.026 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
  
Acute toxicity estimate: 0.026 mg/l  
Test atmosphere: dust/mist  
Method: Calculation method

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Acute dermal toxicity : LD50 (Rabbit, male): 24.4 mg/kg  
LD50 (Rabbit, female): 41.8 mg/kg  
Acute toxicity estimate: 24.4 mg/kg  
Method: Calculation method

**Quartz (SiO<sub>2</sub>):**

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

Acute inhalation toxicity : LC50 (Rat): > 5.01 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 436  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on data from similar materials

**2,2'-oxydiethanol:**

Acute oral toxicity : Acute toxicity estimate: 500.0 mg/kg  
Method: Converted acute toxicity point estimate  
LD50 (Rat, male and female): 16,500 mg/kg

**Naphthenic acids, copper salts:**

Acute oral toxicity : LD50 (Rat, male and female): 300 - 500 mg/kg  
Method: OECD Test Guideline 423  
Remarks: Based on data from similar materials  
Acute toxicity estimate: 300 mg/kg  
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit, male and female): 3,160 mg/kg  
Method: OECD Test Guideline 402  
Symptoms: Lethargy, Diarrhea, anorexia  
Remarks: Based on data from similar materials

**2-ethylhexanoic acid, copper salt:**

Acute oral toxicity : LD50 Oral (Rat, female): 2,043 mg/kg  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): 2,000 mg/kg  
Method: OECD Test Guideline 402  
Acute toxicity estimate: 2,000 mg/kg  
Method: Calculation method

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### Skin corrosion/irritation

Not classified based on available information.

#### **Product:**

Result : No skin irritation

Remarks : May cause skin irritation and/or dermatitis.

#### **Components:**

##### **S,S-di-sec-butyl O-ethyl phosphorodithioate:**

Species : Rabbit  
Result : No skin irritation

##### **Quartz (SiO<sub>2</sub>):**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : Based on data from similar materials

##### **2,2'-oxydiethanol:**

Species : reconstructed human epidermis (RhE)  
Method : OECD Test Guideline 439  
Result : No skin irritation

##### **Naphthenic acids, copper salts:**

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

##### **2-ethylhexanoic acid, copper salt:**

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

### Serious eye damage/eye irritation

Not classified based on available information.

#### **Product:**

Result : No eye irritation

Remarks : Product dust may be irritating to eyes, skin and respiratory system.

#### **Components:**

##### **S,S-di-sec-butyl O-ethyl phosphorodithioate:**

Species : Rabbit  
Result : No eye irritation

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### Quartz (SiO<sub>2</sub>):

Species	: Rabbit
Method	: OECD Test Guideline 405
Result	: No eye irritation
Remarks	: Based on data from similar materials

### 2,2'-oxydiethanol:

Species	: Rabbit
Result	: No eye irritation

### Naphthenic acids, copper salts:

Method	: in vitro eye irritation test
Result	: No eye irritation

### 2-ethylhexanoic acid, copper salt:

Species	: Bovine cornea
Method	: OECD Test Guideline 437
Result	: Irreversible effects on the eye

### Respiratory or skin sensitization

#### Skin sensitization

May cause an allergic skin reaction.

#### Respiratory sensitization

Not classified based on available information.

### Product:

Result	: May cause sensitization by skin contact.
Remarks	: Causes sensitization.

### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Result	: Not a skin sensitizer.
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### Quartz (SiO<sub>2</sub>):

Test Type	: Local lymph node assay (LLNA)
Species	: Mouse
Method	: OECD Test Guideline 429
Result	: Does not cause skin sensitization.
Remarks	: Based on data from similar materials

### 2,2'-oxydiethanol:

Test Type	: Maximization Test
Species	: Guinea pig
Method	: Regulation (EC) No. 440/2008, Annex, B.6
Result	: Does not cause skin sensitization.

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**Naphthenic acids, copper salts:**

Test Type	: Maximization Test
Species	: Guinea pig
Result	: Causes sensitization.
Remarks	: Based on data from similar materials

**2-ethylhexanoic acid, copper salt:**

Test Type	: Open epicutaneous test
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Does not cause skin sensitization.

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Quartz (SiO<sub>2</sub>):**

Genotoxicity in vitro	: Test Type: reverse mutation assay Result: negative Remarks: Based on data from similar materials
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Rat Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials

**2,2'-oxydiethanol:**

Genotoxicity in vitro	: Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse (male) Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative

**Naphthenic acids, copper salts:**

Genotoxicity in vitro	: Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse (male and female) Application Route: Ingestion Exposure time: 48 h Method: Mutagenicity (micronucleus test) Result: negative

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Remarks: Based on data from similar materials

### 2-ethylhexanoic acid, copper salt:

Genotoxicity in vitro	: Test Type: reverse mutation assay Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative GLP: yes
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse Application Route: Oral Method: Mutagenicity (micronucleus test) Result: negative

### Carcinogenicity

Not classified based on available information.

### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Remarks	: No significant adverse effects were reported
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#### 2,2'-oxydiethanol:

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 108 weeks
Result	: negative

### Reproductive toxicity

Not classified based on available information.

### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Effects on fertility	: Remarks: No significant adverse effects were reported
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#### 2,2'-oxydiethanol:

Effects on fertility	: Test Type: reproductive and developmental toxicity study Species: Mouse, male and female Application Route: Oral Result: negative
Effects on fetal development	: Species: Rat Application Route: Oral Method: OECD Test Guideline 414 Result: Embryotoxic effects and adverse effects on the off-spring were detected only at high maternally toxic doses

### Naphthenic acids, copper salts:

Effects on fertility	: Species: Rat, male and female
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Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative  
Remarks: Based on data from similar materials

Species: Rat, male and female  
Application Route: Ingestion  
General Toxicity F1: NOAEL: 100 mg/kg body weight  
Remarks: Based on data from similar materials

Effects on fetal development : Species: Rabbit  
Application Route: Ingestion  
General Toxicity Maternal: NOAEL: 7.5 mg/kg body weight  
Developmental Toxicity: NOAEL: 15 mg/kg body weight  
Target Organs: Stomach, Kidney  
Method: OECD Test Guideline 414  
Result: positive  
Remarks: Based on data from similar materials

### 2-ethylhexanoic acid, copper salt:

Effects on fertility : Test Type: reproductive and developmental toxicity study  
Species: Rat  
Application Route: Oral

Effects on fetal development : Test Type: reproductive and developmental toxicity study  
Species: Rabbit  
Application Route: Oral

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### STOT-single exposure

Causes damage to organs.

#### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Target Organs : Central nervous system, Peripheral nervous system  
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

### STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

#### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Target Organs : Central nervous system, Peripheral nervous system  
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

### Quartz (SiO<sub>2</sub>):

Routes of exposure : Inhalation



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Target Organs : Lungs  
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

### Repeated dose toxicity

#### Components:

##### **Quartz (SiO<sub>2</sub>):**

Species : Rat  
: 0.0025 mg/l  
Application Route : Inhalation  
Exposure time : 90 day  
Method : OECD Test Guideline 413  
Target Organs : Lungs  
Remarks : Based on data from similar materials

##### **2,2'-oxydiethanol:**

Species : Rat, male and female  
NOAEL : 300 mg/kg  
Application Route : Oral  
Exposure time : 98 d

Species : Dog, male  
NOAEL : 2,220 mg/kg  
Exposure time : 28 d  
Method : OECD Test Guideline 410

##### **Naphthenic acids, copper salts:**

Species : Mouse, male and female  
NOAEL : 1,000 mg/l  
LOAEL : 2,000 mg/l  
Application Route : Ingestion  
Method : Regulation (EC) No. 440/2008, Annex, B.26  
Remarks : Based on data from similar materials

##### **2-ethylhexanoic acid, copper salt:**

Species : Mouse  
NOAEL : 180 - 205 mg/kg  
Application Route : Oral  
Exposure time : 13 weeks

Species : Rat  
NOAEL : 2 mg/l  
Application Route : Inhalation  
Exposure time : 28 d  
Method : OECD Test Guideline 412

### **Aspiration toxicity**

Not classified based on available information.

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### **Product:**

The mixture does not have properties associated with aspiration hazard potential.

### **Further information**

### **Product:**

Remarks : No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### **Product:**

Toxicity to fish	:	LC50 (Salmo gairdneri): 0.13 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.75 µg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Scenedesmus subspicatus): 5.7 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC: 5.2 µg/l Exposure time: 95 d Species: Salmo gairdneri
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.231 µg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
Toxicity to terrestrial organisms	:	LD50: 16.1 mg/kg Species: Colinus virginianus (Bobwhite quail)  LC50: 1.8 µg/bee Species: Apis mellifera (bees) Remarks: Contact  LC50: 2.07 µg/bee Species: Apis mellifera (bees) Remarks: Oral

#### **Components:**

##### **S,S-di-sec-butyl O-ethyl phosphorodithioate:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.13 mg/l Exposure time: 96 h  LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.17 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 0.0013 mg/l Exposure time: 48 h

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Toxicity to algae/aquatic plants	:	EC50 (algae): 5.3 mg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.0052 mg/l Exposure time: 21 d Species: Fish
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.00023 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	100
Toxicity to terrestrial organisms	:	LD50: 1.08 µg/bee Species: Apis mellifera (bees) Remarks: Contact  LD50: 2.07 µg/bee Species: Apis mellifera (bees) Remarks: Oral  LD50: 16.1 mg/kg Species: Colinus virginianus (Bobwhite quail)

### Quartz (SiO<sub>2</sub>):

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): > 10,000 mg/l Exposure time: 72 h
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### 2,2'-oxydiethanol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 24 h
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC20 (activated sludge): > 1,995 mg/l Exposure time: 30 min Test Type: Respiration inhibition Method: ISO 8192
Toxicity to fish (Chronic toxicity)	:	NOEC: 15,380 mg/l Exposure time: 7 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other	:	NOEC: 8,590 mg/l

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aquatic invertebrates (Chronic toxicity)      Exposure time: 7 d  
Species: Ceriodaphnia dubia (water flea)

**Naphthenic acids, copper salts:**

Toxicity to fish      : LC50 (Pimephales promelas (fathead minnow)): 38.4 µg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Remarks: Based on data from similar materials

LC50 (Pimephales promelas (fathead minnow)): 5.62 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)): 20 mg/l  
Exposure time: 48 h  
Test Type: semi-static test  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants      : ErC50 (Pseudokirchneriella subcapitata (green algae)): 29.6 mg/l  
Exposure time: 72 h  
Test Type: Growth inhibition  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity)      : 10

Toxicity to microorganisms      : EC50 (Vibrio fischerii (Bacteria)): 13 mg/l  
Exposure time: 48 h  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity)      : NOEC: 18.9 µg/l  
Exposure time: 7 d  
Species: Pimephales promelas (fathead minnow)

NOEC: 120 µg/l  
End point: mortality  
Exposure time: 64 d  
Species: Fish  
Method: OECD Test Guideline 204

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)      : NOEC: 6.3 µg/l  
Exposure time: 7 d  
Species: Ceriodaphnia dubia (water flea)  
Remarks: Based on data from similar materials

NOEC: 4 µg/l  
Exposure time: 7 d  
Species: Ceriodaphnia dubia (water flea)  
Remarks: Based on data from similar materials

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M-Factor (Chronic aquatic toxicity) : 10

**2-ethylhexanoic acid, copper salt:**

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 180 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 85.4 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (Lemna minor (duckweed)): 0.030 mg/l  
Exposure time: 7 d  
Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 49.3 mg/l  
Exposure time: 96 h

Toxicity to microorganisms : EC50 (Pseudomonas putida): 112.1 mg/l  
Exposure time: 17 h  
Method: DIN 38 412 Part 8

Toxicity to fish (Chronic toxicity) : NOEC: 0.0022 mg/l  
Species: Oncorhynchus mykiss (rainbow trout)  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 25 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

Chronic Toxicity Value: 75 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

Chronic Toxicity Value: 63 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : 1

**12.2 Persistence and degradability****Components:****Quartz (SiO<sub>2</sub>):**

Biodegradability : Result: Not biodegradable

**2,2'-oxydiethanol:**

Biodegradability : Result: Readily biodegradable.

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Biodegradation: 25 - 92 %  
Exposure time: 28 d

### Naphthenic acids, copper salts:

Biodegradability : Result: Inherently biodegradable.  
Remarks: Based on data from similar materials

### 2-ethylhexanoic acid, copper salt:

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 99 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301E

## 12.3 Bioaccumulative potential

### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

Bioaccumulation : Bioconcentration factor (BCF): 220

Partition coefficient: n-octanol/water : log Pow: 3.9

#### Quartz (SiO<sub>2</sub>):

Bioaccumulation : Remarks: Does not bioaccumulate.

#### 2,2'-oxydiethanol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)  
Bioconcentration factor (BCF): 100

Partition coefficient: n-octanol/water : log Pow: -1.98 (20 °C)

### Naphthenic acids, copper salts:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)  
Exposure time: 4 d  
Bioconcentration factor (BCF): 2

Partition coefficient: n-octanol/water : log Pow: 7.65

### 2-ethylhexanoic acid, copper salt:

Partition coefficient: n-octanol/water : log Pow: 2.96

## 12.4 Mobility in soil

### Components:

#### S,S-di-sec-butyl O-ethyl phosphorodithioate:

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Distribution among environmental compartments : Remarks: Moderately mobile in soils

### 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:

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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

## 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.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.

## SECTION 14: Transport information

### 14.1 UN number

IMDG : UN 2783

IATA : UN 2783

### 14.2 UN proper shipping name

IMDG : ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC  
(Cadusafos)

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**IATA** : ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC  
(Cadusafos)

### 14.3 Transport hazard class(es)

**IMDG** : 6.1

**IATA** : 6.1

### 14.4 Packing group

#### **IMDG**

Packing group : II  
Labels : 6.1  
EmS Code : F-A, S-A

#### **IATA (Cargo)**

Packing instruction (cargo aircraft) : 676  
Packing instruction (LQ) : Y644  
Packing group : II  
Labels : Toxic

#### **IATA (Passenger)**

Packing instruction (passenger aircraft) : 669  
Packing instruction (LQ) : Y644  
Packing group : II  
Labels : Toxic

### 14.5 Environmental hazards

#### **IMDG**

Marine pollutant : yes

### 14.6 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.

### 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

**The ingredients of this product are reported in the following inventories:**

TCSI : On the inventory, or in compliance with the inventory

TSCA : Product contains substance(s) not listed on TSCA inventory.

AIIC : Not in compliance with the inventory

DSL : This product contains the following components that are not



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on the Canadian DSL nor NDSL.

S,S-DI-SEC-BUTYL O-ETHYL PHOSPHORODITHIOATE

ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	Not in compliance with the inventory

### 15.2 Chemical Safety Assessment

#### SECTION 16: Other information

##### Full text of H-Statements

H226	:	Flammable liquid and vapor.
H300	:	Fatal if swallowed.
H301	:	Toxic if swallowed.
H302	:	Harmful if swallowed.
H310	:	Fatal in contact with skin.
H312	:	Harmful in contact with skin.
H318	:	Causes serious eye damage.
H330	:	Fatal if inhaled.
H361	:	Suspected of damaging fertility or the unborn child.
H370	:	Causes damage to organs.
H372	:	Causes damage to organs through prolonged or repeated exposure.
H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic 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
Flam. Liq.	:	Flammable liquids
Repr.	:	Reproductive toxicity
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
ZA OEL	:	South Africa. The Regulations for Hazardous Chemical Agents, Occupational Exposure Limits

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2004/37/EC / TWA : Long term exposure limit  
ZA OEL / OEL- ML : Occupational Exposure Limit Maximum limit - 8- hour exposure or equivalent (12 hour shifts).

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Other information :

### Classification of the mixture:

Acute Tox. 4	H302
Acute Tox. 2	H330
Acute Tox. 2	H310
Skin Sens. 1	H317
STOT SE 1	H370
STOT RE 1	H372
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

### Classification procedure:

Based on product data or assessment
Calculation method
Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method
Based on product data or assessment
Based on product data or assessment

### Disclaimer

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