

**DUAL GOLD**

Version 3.2      Revision Date: 19.10.2022      SDS Number: S1418372815      This version replaces all previous versions.

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name : DUAL GOLD  
Design code : A9558G

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

Use of the Substance/Mixture : Herbicide

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

Company : Syngenta SA (Pty) Ltd  
P.O. Box 1044, No. 4 Krokodil drift Avenue  
Brits 0250  
South Africa  
  
Telephone : +27 (0)12 2506 300  
  
Telefax : -  
  
E-mail address of person responsible for the SDS : sds.ame@syngenta.com

**1.4 Emergency telephone number**

Emergency telephone number : +27 (0) 82 446 8946 (Griffon)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Skin sensitisation, Sub-category 1A	H317: May cause an allergic skin reaction.
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****Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal word : Warning

Hazard statements : H410 Very toxic to aquatic life with long lasting effects.  
H317 May cause an allergic skin reaction.

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Precautionary statements : P102 Keep out of reach of children.

### Prevention:

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P280 Wear protective gloves.

### Response:

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

P362 + P364 Take off contaminated clothing and wash it before reuse.

P391 Collect spillage.

### Storage:

P405 Store locked up.

### Disposal:

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

Hazardous components which must be listed on the label:

S-metolachlor  
benoxacor

### 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-metolachlor	87392-12-9  607-432-00-4	Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	>= 70 - < 90
poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- -hydroxy-	99734-09-5	Aquatic Chronic 3; H412	>= 2,5 - < 10
benoxacor	98730-04-2  01-2119382304-42-xxxx	Skin Sens. 1; H317 Aquatic Chronic 1; H410	>= 2,5 - < 10

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		M-Factor (Chronic aquatic toxicity): 1	
calcium dodecylbenzene sulphonate	26264-06-2 247-557-8 01-2119560592-37-xxxx	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 3 - < 10
hydrocarbons, C10-C13, aromatics, <1% naphthalene	64742-94-5  01-2119451097-39-xxxx	Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 2,5 - < 10
2-methylpropan-1-ol	78-83-1 201-148-0 603-108-00-1 01-2119484609-23-xxxx	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system)	>= 1 - < 3

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.
- If inhaled : Move the victim to fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Keep patient warm and at rest.  
Call a physician or poison control centre immediately.
- In case of skin contact : Take off all contaminated clothing immediately.  
Wash off immediately with plenty of water.  
If skin irritation persists, call a physician.  
Wash contaminated clothing before re-use.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Remove contact lenses.  
Immediate medical attention is required.
- If swallowed : If swallowed, seek medical advice immediately and show this container or label.  
Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

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

Symptoms : Aspiration may cause pulmonary oedema and pneumonitis.

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

Treatment : There is no specific antidote available.  
Treat symptomatically.  
Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

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

Suitable extinguishing media : Extinguishing media - small fires  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
Extinguishing media - large fires  
Alcohol-resistant foam

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

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

Specific hazards during firefighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).  
Exposure to decomposition products may be a hazard to health.  
Flash back possible over considerable distance.

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

Further information : Do not allow run-off from fire fighting to enter drains or water courses.  
Cool closed containers exposed to fire with water spray.

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

Personal precautions : Refer to protective measures listed in sections 7 and 8.  
Keep people away from and upwind of spill/leak.  
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.  
Remove all sources of ignition.  
Pay attention to flashback.

**6.2 Environmental precautions**

Environmental precautions : Prevent further leakage or spillage if safe to do so.

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Do not flush into surface water or sanitary sewer system.  
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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).  
Clean contaminated surface thoroughly.  
Clean with detergents. Avoid solvents.  
Retain and dispose of contaminated wash water.

### 6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Avoid contact with skin and eyes.  
When using do not eat, drink or smoke.  
Use only in an area containing flame proof equipment.  
Take precautionary measures against static discharges.  
For personal protection see section 8.

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

Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from combustible material. Keep in an area equipped with sprinklers. Keep away from food, drink and animal feedingstuffs. No smoking.

### 7.3 Specific end use(s)

Specific use(s) : For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
S-metolachlor	87392-12-9	TWA	5 mg/m <sup>3</sup>	Syngenta
benoxacor	98730-04-2	TWA	1 mg/m <sup>3</sup>	Syngenta
hydrocarbons, C10-C13, aromatics, <1% naphthalene	64742-94-5	TWA	8 ppm 50 mg/m <sup>3</sup>	Supplier
2-methylpropan-1-	78-83-1	OEL-RL	100 ppm	ZA OEL

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ol			
Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
benoxacor	Industrial use	Dermal	Long-term exposure, Systemic effects	2,8 mg/kg
	Industrial use	Inhalation	Long-term exposure, Specific effects	1 mg/m <sup>3</sup>
calcium dodecylbenzene sulphonate	Workers	Inhalation	Long-term systemic effects	52 mg/m <sup>3</sup>
	Workers	Inhalation	Acute systemic effects	52 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	52 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	52 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	57,2 mg/kg
	Workers	Dermal	Acute systemic effects	80 mg/kg
	Workers	Dermal	Long-term local effects	1,57 mg/cm <sup>2</sup>
	Workers	Dermal	Acute local effects	1,57 mg/cm <sup>2</sup>
	Workers	Inhalation	Long-term systemic effects, Long-term local effects	310 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term systemic effects, Long-term local effects	55 mg/m <sup>3</sup>
	Consumers	Oral	Long-term systemic effects, Long-term local effects	25 mg/kg
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Workers	Inhalation	Long-term systemic effects	151 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	12,5 mg/kg
	Consumers	Inhalation	Long-term systemic effects	32 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	7,5 mg/kg
	Consumers	Oral	Long-term systemic effects	7,5 mg/kg

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

Substance name	Environmental Compartment	Value
benoxacor	Fresh water	0,022 mg/l
	Fresh water sediment	0,559 mg/l
	Marine water	0,0022 mg/l
	Marine sediment	0,0559 mg/kg dry weight (d.w.)

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	Soil	0,099 mg/kg dry weight (d.w.)
calcium dodecylbenzene sulphonate	Fresh water	0,28 mg/l
	Marine water	0,458 mg/l
	Freshwater - intermittent	0,654 mg/l
	Sewage treatment plant	50 mg/l
	Fresh water sediment	27,5 mg/kg
2-methylpropan-1-ol	Marine sediment	2,75 mg/kg
	Fresh water	0,4 mg/l
	Sewage treatment plant	10 mg/l
	Soil	0,0699 mg/kg
	Marine sediment	0,152 mg/kg
	Fresh water sediment	1,52 mg/kg
	Marine water	0,04 mg/l

### 8.2 Exposure controls

#### Engineering measures

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.  
Where necessary, seek additional occupational hygiene advice.

#### Personal protective equipment

Eye/face protection : No special protective equipment required.  
Hand protection

Material : Nitrile rubber  
Break through time : > 480 min  
Glove thickness : 0,5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.  
Remove and wash contaminated clothing before re-use.  
Wear as appropriate:  
Impervious clothing

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- Respiratory protection : No personal respiratory protective equipment normally required.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.  
When selecting personal protective equipment, seek appropriate professional advice.

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

- Appearance : liquid  
Colour : light brown to dark brown red  
Odour : characteristic  
Odour Threshold : No data available
- pH : 4 - 8  
Concentration: 1 % w/v
- Melting point/range : No data available
- Boiling point/boiling range : No data available
- Flash point : 80 °C  
Method: Pensky-Martens closed cup
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Upper explosion limit / Upper flammability limit : No data available
- Lower explosion limit / Lower flammability limit : No data available
- Vapour pressure : No data available
- Relative vapour density : No data available
- Density : 1,115 g/cm<sup>3</sup> (20 °C)
- Solubility(ies)  
Water solubility : No data available  
Solubility in other solvents : No data available
- Partition coefficient: n-octanol/water : No data available
- Auto-ignition temperature : 395 °C
- Decomposition temperature : No data available



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Viscosity  
Viscosity, dynamic : No data available  
Viscosity, kinematic : No data available  
Explosive properties : Not explosive  
Oxidizing properties : The substance or mixture is not classified as oxidizing.

**9.2 Other information**

Particle size : No data available

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**SECTION 10: Stability and reactivity****10.1 Reactivity**

None reasonably foreseeable.

**10.2 Chemical stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : No dangerous reaction known under conditions of normal use.

**10.4 Conditions to avoid**

Conditions to avoid : No decomposition if used as directed.

**10.5 Incompatible materials**

Materials to avoid : None known.

**10.6 Hazardous decomposition products**

Hazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

Information on likely routes of exposure : Ingestion  
Inhalation  
Skin contact  
Eye contact

**Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat, male): 2.675 mg/kg  
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat, male and female): > 3,06 mg/l

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Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2.020 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on data from similar materials

**Components:****S-metolachlor:**

Acute oral toxicity : LD50 (Rat, male and female): 2.672 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 2,91 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2.000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**benoxacor:**

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 2 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2.010 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**2-methylpropan-1-ol:**

Acute oral toxicity : LD50 (Rat): 2.830 - 3.350 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 24,6 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2.000 - 2.460 mg/kg

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**Skin corrosion/irritation****Product:**

Species : Rabbit  
Result : No skin irritation  
Remarks : Based on data from similar materials

**Components:****S-metolachlor:**

Species : Rabbit  
Result : No skin irritation

**benoxacor:**

Species : Rabbit  
Result : No skin irritation

**calcium dodecylbenzene sulphonate:**

Result : Irritating to skin.

**hydrocarbons, C10-C13, aromatics, <1% naphthalene:**

Result : Repeated exposure may cause skin dryness or cracking.

**2-methylpropan-1-ol:**

Result : Irritating to skin.

**Serious eye damage/eye irritation****Product:**

Species : Rabbit  
Result : No eye irritation  
Remarks : Based on data from similar materials

**Components:****S-metolachlor:**

Species : Rabbit  
Result : No eye irritation

**benoxacor:**

Species : Rabbit  
Result : No eye irritation

**calcium dodecylbenzene sulphonate:**

Result : Risk of serious damage to eyes.

**2-methylpropan-1-ol:**

Result : Risk of serious damage to eyes.

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### Respiratory or skin sensitisation

#### **Product:**

Test Type : Maximisation Test  
 Species : Guinea pig  
 Result : The product is a skin sensitiser, sub-category 1A.  
 Remarks : Based on data from similar materials

#### **Components:**

##### **S-metolachlor:**

Species : Guinea pig  
 Result : The product is a skin sensitiser, sub-category 1B.

##### **benoxacor:**

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

##### **2-methylpropan-1-ol:**

Species : Guinea pig  
 Result : Did not cause sensitisation on laboratory animals.  
 Remarks : Information given is based on data obtained from similar substances.

### Germ cell mutagenicity

#### **Components:**

##### **S-metolachlor:**

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

##### **poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- -hydroxy-:**

Germ cell mutagenicity-Assessment : In vitro tests did not show mutagenic effects

##### **benoxacor:**

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

### Carcinogenicity

#### **Components:**

##### **S-metolachlor:**

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

##### **benoxacor:**

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

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### Reproductive toxicity

#### Components:

##### **S-metolachlor:**

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.

##### **benoxacor:**

Reproductive toxicity - Assessment : No toxicity to reproduction

### STOT - single exposure

#### Components:

##### **2-methylpropan-1-ol:**

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

### STOT - repeated exposure

#### Components:

##### **S-metolachlor:**

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

##### **benoxacor:**

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

### Aspiration toxicity

#### Components:

##### **hydrocarbons, C10-C13, aromatics, <1% naphthalene:**

May be fatal if swallowed and enters airways.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7,6 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna Straus): 19,8 mg/l  
Exposure time: 48 h

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Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0,11 mg/l  
Exposure time: 72 h  
Remarks: Based on data from similar materials

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0,004 mg/l  
Exposure time: 72 h  
Remarks: Based on data from similar materials

### Components:

#### **S-metolachlor:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,23 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Americamysis): 1,4 mg/l  
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0,077 mg/l  
Exposure time: 96 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0,016 mg/l  
End point: Growth rate  
Exposure time: 96 h

EC50 (Lemna gibba (gibbous duckweed)): 0,023 mg/l  
Exposure time: 14 d

NOEC (Lemna gibba (gibbous duckweed)): 0,0076 mg/l  
Exposure time: 14 d

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : NOEC: 0,03 mg/l  
Exposure time: 35 d  
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,13 mg/l  
Exposure time: 28 d  
Species: Americamysis

M-Factor (Chronic aquatic toxicity) : 10

**poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- -hydroxy-**

### **Ecotoxicology Assessment**

Acute aquatic toxicity : Harmful to aquatic life.

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Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

### benoxacor:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2,9 mg/l  
Exposure time: 96 h

LC50 (Ictalurus punctatus (channel catfish)): 1,4 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 17 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 13,5 mg/l  
Exposure time: 72 h

EC10 (Desmodesmus subspicatus (green algae)): 0,22 mg/l  
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC: 0,31 mg/l  
Exposure time: 32 d  
Species: Pimephales promelas (fathead minnow)

NOEC: 0,016 mg/l  
Exposure time: 21 d  
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,354 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 1

### calcium dodecylbenzene sulphonate:

#### Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

### hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 3,6 mg/l  
Exposure time: 96 h  
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 1,1 mg/l  
Exposure time: 48 h  
Remarks: Information given is based on data obtained from similar substances.

Toxicity to algae/aquatic plants : EL50 (Raphidocelis subcapitata (freshwater green alga)): 7,9 mg/l  
End point: Growth rate  
Exposure time: 72 h  
Remarks: Information given is based on data obtained from

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similar substances.

NOELR (Raphidocelis subcapitata (freshwater green alga)):  
0,22 mg/l

End point: Growth rate

Exposure time: 72 h

Remarks: Information given is based on data obtained from similar substances.

### Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

#### 2-methylpropan-1-ol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1.430 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia pulex (Water flea)): 1.100 mg/l  
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (Raphidocelis subcapitata (freshwater green alga)):  
plants 1.799 mg/l  
Exposure time: 72 h

Toxicity to daphnia and other : NOEC: 20 mg/l  
aquatic invertebrates Exposure time: 21 d  
(Chronic toxicity) Species: Daphnia magna (Water flea)

### 12.2 Persistence and degradability

#### Components:

##### **S-metolachlor:**

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life: 53 - 147 d  
Remarks: Product is not persistent.

##### **poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- -hydroxy-:**

Biodegradability : Result: Not readily biodegradable.

##### **benoxacor:**

Biodegradability : Result: Not readily biodegradable.

##### **hydrocarbons, C10-C13, aromatics, <1% naphthalene:**

Biodegradability : Result: Readily biodegradable.

##### **2-methylpropan-1-ol:**

Biodegradability : Result: Readily biodegradable.



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### 12.3 Bioaccumulative potential

#### Components:

##### **S-metolachlor:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3,05 (25 °C)

##### **benoxacor:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 2,6 (25 °C)

### 12.4 Mobility in soil

#### Components:

##### **S-metolachlor:**

Distribution among environmental compartments : Remarks: Moderately mobile in soils

Stability in soil : Dissipation time: 12 - 46 d  
Percentage dissipation: 50 % (DT50)  
Remarks: Product is not persistent.

##### **benoxacor:**

Distribution among environmental compartments : Remarks: Moderately mobile in soils

Stability in soil : Dissipation time: 0,9 - 5,3 d  
Percentage dissipation: 50 % (DT50)  
Remarks: Product is not persistent.

### 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.

#### Components:

##### **benoxacor:**

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

##### **2-methylpropan-1-ol:**

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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**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.

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**SECTION 13: Disposal considerations****13.1 Waste treatment methods**

Product : Do not contaminate ponds, waterways or ditches with chemical or used container.  
Do not dispose of waste into sewer.  
Where possible recycling is preferred to disposal or incineration.  
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty remaining contents.  
Triple rinse containers.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

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**SECTION 14: Transport information****14.1 UN number**

UNRTDG : UN 3082  
IMDG : UN 3082  
IATA : UN 3082

**14.2 UN proper shipping name**

UNRTDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(S-METOLACHLOR)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(S-METOLACHLOR)

IATA : Environmentally hazardous substance, liquid, n.o.s.  
(S-METOLACHLOR)

**14.3 Transport hazard class(es)**

UNRTDG : 9  
IMDG : 9

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**IATA** : 9

### 14.4 Packing group

#### UNRTDG

Packing group : III  
Labels : 9

#### IMDG

Packing group : III  
Labels : 9  
EmS Code : F-A, S-F

#### IATA (Cargo)

Packing instruction (cargo aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

#### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### 14.5 Environmental hazards

#### IMDG

Marine pollutant : yes

#### IATA (Passenger)

Environmentally hazardous : yes

#### IATA (Cargo)

Environmentally hazardous : 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

#### Other regulations:

None known.

### 15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

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### SECTION 16: Other information

#### Full text of H-Statements

H226	:	Flammable liquid and vapour.
H304	:	May be fatal if swallowed and enters airways.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

#### Full text of other abbreviations

Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Flam. Liq.	:	Flammable liquids
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
ZA OEL	:	South Africa. The Regulations for Hazardous Chemical Agents, Occupational Exposure Limits
ZA OEL / OEL-RL	:	Occupational Exposure Limit Restricted 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; AIIIC - 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; EC<sub>x</sub> - Concentration associated with x% response; EL<sub>x</sub> - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC<sub>x</sub> - 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; IC<sub>50</sub> - 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; LC<sub>50</sub> - Lethal Concentration to 50 % of a test population; LD<sub>50</sub> - 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

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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

**Further information****Classification of the mixture:**

Skin Sens. 1A	H317
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

**Classification procedure:**

Based on product data or assessment
Based on product data or assessment
Based on product data or assessment

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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