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

1.1 Product identifier
   - Trade name: ORTIVA OPTI
   - Design code: A14111B
   - Product Registration Number: MAPP 18208

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Use of the Substance/Mixture: Fungicide

1.3 Details of the supplier of the safety data sheet
   - Company: Syngenta UK Limited
     CPC4, Capital Park
     Fulbourn, Cambridge CB21 5XE
     United Kingdom
   - Telephone: +44 (0) 1223 883400
   - Telefax: +44 (0) 1223 882195
   - E-mail address of person responsible for the SDS: customer.services@syngenta.com

1.4 Emergency telephone number
   - Emergency telephone number: +44 1484 538444

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   - Classification (REGULATION (EC) No 1272/2008)
     - Skin sensitisation, Category 1: H317: May cause an allergic skin reaction.
     - Serious eye damage, Category 1: H318: Causes serious eye damage.
     - Acute toxicity, Category 4: H332: Harmful if inhaled.
     - Specific target organ toxicity - single exposure, Category 3, Respiratory system: H335: May cause respiratory irritation.
     - Carcinogenicity, Category 2: H351: Suspected of causing cancer.
     - Short-term (acute) aquatic hazard, Category 1: H400: Very toxic to aquatic life.
gory 1

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: Danger

Hazard statements:
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H351 Suspected of causing cancer.
- H410 Very toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements:
- EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statements:
- P102 Keep out of reach of children.

Prevention:
- P261 Avoid breathing spray.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P281 Use personal protective equipment as required.

Response:
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/ physician.
- P391 Collect spillage.

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

Disposal:
- P501 Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty triple rinsed clean containers which can be disposed of as non-hazardous waste.
### 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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>chlorothalonil (ISO)</td>
<td>1897-45-6</td>
<td>217-588-1</td>
<td>608-014-00-4</td>
<td></td>
<td>Acute Tox. 2; H330 Eye Dam. 1; H335 Carc. 2; H351 STOT SE 3; H335 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>azoxystrobin (ISO)</td>
<td>131860-33-8</td>
<td>607-256-00-8</td>
<td></td>
<td></td>
<td>Acute Tox. 3; H331 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>alcohols, C12-16, ethoxylated</td>
<td>68551-12-2</td>
<td>500-221-7</td>
<td></td>
<td></td>
<td>Acute Tox. 4; H302 Eye Dam. 1; H318</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>poly(oxy-1,2-ethanediyl) alpha undecyl- omega -hydroxy-, branched and linear</td>
<td>127036-24-2</td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4; H302 Eye Dam. 1; H318</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td>1,2-benzisothiazol-3(2H)-one</td>
<td>2634-33-5</td>
<td>220-120-9</td>
<td>613-088-00-6</td>
<td></td>
<td>Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H317 Skin Sens. 1; H317 Aquatic Acute 1; H400</td>
<td>&lt; 0.05</td>
</tr>
</tbody>
</table>

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.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Nonspecific
No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: There is no specific antidote available.
Treat symptomatically.

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 or
Water spray

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.

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.

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.

6.2 Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. 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: No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

Further information on storage stability
: Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>chlorothalonil (ISO)</td>
<td>1897-45-6</td>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>Syngenta</td>
</tr>
</tbody>
</table>

Further information
Substances used as active ingredients in pesticides are listed under their systematic chemical names and/or their (ISO) common names. These may sometimes be used as parts of the names of proprietary pesticide formulations. In all cases, the exposure limit applies to the specific active ingredient in the workplace atmosphere and not the formulation as a whole.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>azoxystrobin (ISO)</td>
<td>131860-33-8</td>
<td>TWA</td>
<td>4 mg/m3</td>
<td>Syngenta</td>
</tr>
<tr>
<td>propane-1,2-diol</td>
<td>57-55-6</td>
<td>TWA (particles)</td>
<td>10 mg/m3</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

Further information
Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-55-6</td>
<td></td>
<td>TWA (Total vapour and particles)</td>
<td>150 ppm 474 mg/m3</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

Further information
Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

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 protection**
- Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
- Tightly fitting safety goggles
- Face-shield

Equipment should conform to EN 166

**Hand protection**

<table>
<thead>
<tr>
<th>Material</th>
<th>Nitrile rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Break through time</td>
<td>&gt; 480 min</td>
</tr>
<tr>
<td>Glove thickness</td>
<td>0.5 mm</td>
</tr>
</tbody>
</table>

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. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

**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

**Respiratory protection**
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Suitable respiratory equipment:
  - Respirator with a particle filter (EN 143)
  - The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

<table>
<thead>
<tr>
<th>Filter type</th>
<th>Particulates type (P)</th>
</tr>
</thead>
</table>

**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.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>white grey to light beige</td>
</tr>
<tr>
<td>Odour</td>
<td>sweet</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>4 - 8</td>
</tr>
<tr>
<td></td>
<td>Concentration: 1 % w/v</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 100 °C(1004 hPa)</td>
</tr>
<tr>
<td></td>
<td>Method: Pensky-Martens closed cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.22 g/cm3 (25 °C)</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>&gt; 650 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>87.0 - 572 mPa.s (20 °C)</td>
</tr>
<tr>
<td></td>
<td>65.0 - 495 mPa.s (40 °C)</td>
</tr>
</tbody>
</table>
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information
Surface tension : 29.5 mN/m, 20 °C

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.

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, female): > 3,045 mg/kg
Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 1.06 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Irritating to respiratory system.

Acute dermal toxicity: LD50 (Rat, male and female): > 5,050 mg/kg

Components:

chlorothalonil (ISO):
Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat, male and female): 0.10 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rat, male and female): > 5,000 mg/kg

azoxyostrobin (ISO):
Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat, female): 0.7 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  LC50 (Rat, male): 0.9 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
  Assessment: The substance or mixture has no acute dermal toxicity

alcohols, C12-16, ethoxylated:
Acute oral toxicity: Assessment: The component/mixture is moderately toxic after single ingestion.

poly(oxy-1,2-ethanediyl) alpha undecyl- omega-hydroxy-, branched and linear:
Acute oral toxicity: Acute toxicity estimate: 500 mg/kg
  Method: Expert judgement

1,2-benzisothiazol-3(2H)-one:
Acute oral toxicity: LD50 (Rat): 1,020 mg/kg

Skin corrosion/irritation

Product:
Species: Rabbit
Result: No skin irritation
Components:

chlorothalonil (ISO):
Species: Rabbit
Result: No skin irritation

azoxystrobin (ISO):
Species: Rabbit
Result: No skin irritation

1,2-benzisothiazol-3(2H)-one:
Result: Irritating to skin.

Serious eye damage/eye irritation

Product:
Species: Rabbit
Result: Irreversible effects on the eye

Components:

chlorothalonil (ISO):
Species: Rabbit
Result: Risk of serious damage to eyes.

azoxystrobin (ISO):
Species: Rabbit
Result: No eye irritation

alcohols, C12-16, ethoxylated:
Result: Risk of serious damage to eyes.

poly(oxy-1,2-ethanediyl) alpha undecyl- omega -hydroxy-, branched and linear:
Result: Risk of serious damage to eyes.

1,2-benzisothiazol-3(2H)-one:
Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Components:

chlorothalonil (ISO):
Species: Guinea pig
Result: May cause sensitisation by skin contact.
Remarks: In very rare cases may cause an allergic response of the respiratory system.
azoxystrobin (ISO):
Species: Guinea pig
Result: Did not cause sensitisation on laboratory animals.

1,2-benzisothiazol-3(2H)-one:
Result: Probability or evidence of skin sensitisation in humans

Germ cell mutagenicity

Components:
chlorothalonil (ISO):
Germ cell mutagenicity - Assessment: Animal testing did not show any mutagenic effects.

azoxystrobin (ISO):
Germ cell mutagenicity - Assessment: Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:
chlorothalonil (ISO):
Carcinogenicity - Assessment: Chlorothalonil causes kidney tumours in rats and mice via a non-gentoxic mode of action secondary to target organ toxicity. Limited evidence of carcinogenicity in animal studies.

azoxystrobin (ISO):
Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:
chlorothalonil (ISO):
Reproductive toxicity - Assessment: No toxicity to reproduction

azoxystrobin (ISO):
Reproductive toxicity - Assessment: No toxicity to reproduction
STOT - single exposure

**Components:**

**chlorothalonil (ISO):**
- Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Repeated dose toxicity

**Components:**

**chlorothalonil (ISO):**
- Remarks: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**azoxystrobin (ISO):**
- Remarks: No adverse effect has been observed in chronic toxicity tests.

SECTION 12: Ecological information

**12.1 Toxicity**

**Product:**

- **Toxicity to fish**
  - LC50 (Oncorhynchus mykiss (rainbow trout)): 0.15 mg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates**
  - EC50 (Daphnia magna (Water flea)): 0.37 mg/l
  - Exposure time: 48 h

- **Toxicity to algae/aquatic plants**
  - ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.69 mg/l
  - Exposure time: 72 h

**Components:**

**chlorothalonil (ISO):**

- **Toxicity to fish**
  - LC50 (Oncorhynchus mykiss (rainbow trout)): 0.039 mg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates**
  - EC50 (Daphnia magna (Water flea)): 0.07 mg/l
  - Exposure time: 48 h

- **Toxicity to algae/aquatic plants**
  - ErC50 (Navicula pelliculosa (Freshwater diatom)): 0.02 mg/l
  - Exposure time: 96 h

  NOEC (Navicula pelliculosa (Freshwater diatom)): 0.0035 mg/l
  End point: Growth rate
  Exposure time: 96 h
### ORTIVA OPTI

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>This version replaces all previous versions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>19.02.2019</td>
<td>S1336592887</td>
<td></td>
</tr>
</tbody>
</table>

#### ErC50 (Skeletonema costatum (marine diatom)):
- **0.017 mg/l**
- Exposure time: 96 h

#### NOEC (Skeletonema costatum (marine diatom)):
- **0.012 mg/l**
- End point: Growth rate
- Exposure time: 96 h

### M-Factor (Acute aquatic toxicity):
- **10**

### Toxicity to fish (Chronic toxicity):
- **NOEC: 0.003 mg/l**
- Exposure time: 297 d
- Species: *Pimephales promelas* (fathead minnow)

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- **NOEC: 0.035 mg/l**
- Exposure time: 21 d
- Species: *Daphnia magna* (Water flea)
- **NOEC: 0.00083 mg/l**
- Exposure time: 28 d
- Species: *Americamysis*

### M-Factor (Chronic aquatic toxicity):
- **10**

#### Azoxystrobin (ISO):

**Toxicity to fish**
- **LC50 (Oncorhynchus mykiss (rainbow trout)): 0.47 mg/l**
- Exposure time: 96 h

**Toxicity to daphnia and other aquatic invertebrates**
- **EC50 (Americamysis): 0.055 mg/l**
- Exposure time: 96 h

**Toxicity to algae/aquatic plants**
- **ErC50 (Pseudokirchneriella subcapitata (green algae)): 2 mg/l**
- Exposure time: 96 h
- **NOEC (Pseudokirchneriella subcapitata (green algae)): 0.038 mg/l**
- End point: Growth rate
- Exposure time: 96 h
- **ErC50 (Navicula pelliculosa (Freshwater diatom)): 0.301 mg/l**
- Exposure time: 96 h

### M-Factor (Acute aquatic toxicity):
- **10**

**Toxicity to microorganisms**
- **IC50 (Pseudomonas putida): > 3.2 mg/l**
- Exposure time: 6 h

**Toxicity to fish (Chronic toxicity)**
- **NOEC: 0.16 mg/l**
- Exposure time: 28 d
- Species: *Oncorhynchus mykiss* (rainbow trout)
15 / 21

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

ORTIVA OPTI

Version: 9.1
SDS Number: S1336592887
Revision Date: 19.02.2019

This version replaces all previous versions.

NOEC: 0.147 mg/l
Exposure time: 33 d
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

NOEC: 0.044 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

NOEC: 0.0095 mg/l
Exposure time: 28 d
Species: Americamysis

M-Factor (Chronic aquatic toxicity): 10

1,2-benzisothiazol-3(2H)-one:

Ecotoxicology Assessment
Acute aquatic toxicity: Very toxic to aquatic life.

12.2 Persistence and degradability

Components:

chlorothalonil (ISO):
Stability in water: Degradation half life: < 5 d (20 °C)
Remarks: Product is not persistent.

azoxystrobin (ISO):
Biodegradability: Result: Not readily biodegradable.
Stability in water: Degradation half life: 214 d
Remarks: The substance is stable in water.

12.3 Bioaccumulative potential

Components:

chlorothalonil (ISO):
Bioaccumulation: Remarks: Low bioaccumulation potential.
Partition coefficient: n-octanol/water: log Pow: 2.94 (25 °C)

azoxystrobin (ISO):
Bioaccumulation: Remarks: Does not bioaccumulate.
12.4 Mobility in soil

**Components:**

**Chlorothalonil (ISO):**
Distribution among environmental compartments
Remarks: Chlorothalonil has low to slight mobility in soil.
Stability in soil
Remarks: Dissipation time: 7 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

**Azoxystrobin (ISO):**
Distribution among environmental compartments
Remarks: Azoxystrobin has low to very high mobility in soil.
Stability in soil
Remarks: Dissipation time: 80 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:**

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

**Azoxystrobin (ISO):**
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).

12.6 Other adverse effects

**Product:**
Additional ecological information: Classification of the product is based on the summation of the concentrations of classified components.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

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**ORTIVA OPTI**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>This version replaces all previous versions.</th>
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<td>9.1</td>
<td>19.02.2019</td>
<td>S1336592887</td>
<td>This version replaces all previous versions.</td>
</tr>
</tbody>
</table>

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.

Waste Code: 15 01 10, packaging containing residues of or contaminated by hazardous substances

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**SECTION 14: Transport information**

**14.1 UN number**

<table>
<thead>
<tr>
<th>ADN</th>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
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**14.2 UN proper shipping name**

<table>
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<th>RID</th>
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<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (AZOXYSTROBIN AND CHLOROTHALONIL)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (AZOXYSTROBIN AND CHLOROTHALONIL)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (AZOXYSTROBIN AND CHLOROTHALONIL)</td>
<td>Environmentally hazardous substance, liquid, n.o.s. (AZOXYSTROBIN AND CHLOROTHALONIL)</td>
</tr>
</tbody>
</table>

**14.3 Transport hazard class(es)**

<table>
<thead>
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<th>RID</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>
14.4 Packing group

**ADN**
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

**ADR**
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

**RID**
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
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

**ADN**
Environmentally hazardous : yes

**ADR**
Environmentally hazardous : yes

**RID**
Environmentally hazardous : yes

**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.

SECTION 15: Regulatory information

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


<table>
<thead>
<tr>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 t</td>
<td>200 t</td>
</tr>
</tbody>
</table>

Other regulations:

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Use plant protection products safely. Always read the label and product information before use.

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements

H302 : Harmful if swallowed.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H330 : Fatal if inhaled.
H331 : Toxic if inhaled.
H335 : May cause respiratory irritation.
H351 : Suspected of causing cancer.
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
Carc. : Carcinogenicity
Eye Dam. : Serious eye damage
Skin Irrit.: Skin irritation
Skin Sens.: Skin sensitisation
STOT SE: Specific target organ toxicity - single exposure
GB EH40: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period)

Further information
Classification of the mixture: Skin Sens. 1
Classification procedure: Calculation method

Skin Sens. 1 H317 Calculation method
Eye Dam. 1 H318 On basis of test data.
Acute Tox. 4 H332 On basis of test data.
STOT SE 3 H335 Calculation method
Carc. 2 H351 Calculation method
Aquatic Acute 1 H400 On basis of test data.
Aquatic Chronic 1 H410 Calculation method
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.

GB / EN