APACHE

Version 8.0  Revision Date: 06.02.2018  SDS Number: S1406114840  This version replaces all previous versions.

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

1.1 Product identifier

Trade name: APACHE

Design code: A14771N

Product Registration Number: MAPP 14255

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)

Eye irritation, Category 2
H319: Causes serious eye irritation.

Skin sensitisation, Category 1
H317: May cause an allergic skin reaction.

Carcinogenicity, Category 2
H351: Suspected of causing cancer.

Reproductive toxicity, Category 1B
H360D: May damage the unborn child.

Specific target organ toxicity - single exposure, Category 3, Respiratory system
H335: May cause respiratory irritation.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

APACHE

Version 8.0
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Acute aquatic toxicity, Category 1
H400: Very toxic to aquatic life.

Chronic aquatic toxicity, 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.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H360D May damage the unborn child.
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 dust/ fume/ gas/ mist/ vapours/ spray.
P201 Obtain special instructions before use.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
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

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No. Index-No. 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>Acute Tox. 2; H330 Eye Dam. 1; H318 Skin Sens. 1; H317 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></td>
<td>608-014-00-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>propiconazole (ISO)</td>
<td>60207-90-1</td>
<td>262-104-4</td>
<td>Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 2.5 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>613-205-00-0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cyproconazole (ISO)</td>
<td>94361-06-5</td>
<td>650-032-00-X</td>
<td>Acute Tox. 3; H301 Repr. 1B; H360D STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 2.5 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- hydroxy-</td>
<td>99734-09-5</td>
<td></td>
<td>Aquatic Chronic 3; H412</td>
<td>=&gt; 1 - &lt; 2.5</td>
</tr>
<tr>
<td>1,2-benzisothiazol-3(2H)-one</td>
<td>2634-33-5</td>
<td>220-120-9</td>
<td>Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400</td>
<td>=&gt; 0.0025 - &lt; 0.025</td>
</tr>
<tr>
<td></td>
<td>613-088-00-6</td>
<td></td>
<td></td>
<td></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.

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>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
</tr>
<tr>
<td>chlorothalonil (ISO)</td>
</tr>
<tr>
<td>propane-1,2-diol</td>
</tr>
<tr>
<td>Further information</td>
</tr>
<tr>
<td>Further information</td>
</tr>
<tr>
<td>propiconazole (ISO)</td>
</tr>
<tr>
<td>cyproconazole (ISO)</td>
</tr>
<tr>
<td>silicon dioxide, chemically prepared</td>
</tr>
<tr>
<td>Further information</td>
</tr>
</tbody>
</table>

For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m⁻³ 8-hour TWA of inhalable dust or 4 mg.m⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable',. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller
112926-00-8 TWA (Respirable dust) 2.4 mg/m³ (Silica) GB EH40

Further information

For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg·m⁻³ 8-hour TWA of inhalable dust or 4 mg·m⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed ‘inha- lable’ and ‘respirable’. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3. Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane-1,2-diol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>168 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane-1,2-diol</td>
<td>Fresh water</td>
<td>260 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>26 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>183 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>20000 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>57.2 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>572 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>50 mg/kg</td>
</tr>
</tbody>
</table>
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**: Tightly fitting safety goggles
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Use eye protection according 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 length</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 EU Directive 89/686/EEC 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 combination filter for vapour/particulate (EN 141)
The filter class for the respirator must be suitable for the max-
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.

Filter type: Combined particulates and organic vapour type (A-P)

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

Appearance: opaque

Colour: light beige to grey

Odour: characteristic, weak

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: > 100 °C (987.0 hPa)

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: 1.218 g/cm³ (20 °C)

Solubility (ies)
Solubility in other solvents : No data available
Partition coefficient: n-octanol/water : No data available
Auto-ignition temperature : 460 °C
Decomposition temperature : No data available
Viscosity
   Viscosity, dynamic : 113 - 716 mPa.s (20 °C)
          : 125 - 1,098 mPa.s (40 °C)
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information
   Surface tension : 39.0 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
### Acute toxicity

**Product:**

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Acute oral toxicity</th>
<th>LD50 (Rat, female): &gt; 2,000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>Assessment: The substance or mixture has no acute oral toxicity</td>
<td>Remarks: The toxicological data has been taken from products of similar composition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute inhalation toxicity</th>
<th>LC50 (Rat, male and female): &gt; 1.04 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 4 h</td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Assessment: The substance or mixture has no acute inhalation toxicity</td>
<td>Remarks: The toxicological data has been taken from products of similar composition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>LD50 (Rat, male and female): &gt; 2,000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment: The substance or mixture has no acute dermal toxicity</td>
<td>Remarks: The toxicological data has been taken from products of similar composition.</td>
</tr>
</tbody>
</table>

### Components:

**chlorothalonil (ISO):**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat, male and female): &gt; 5,000 mg/kg</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Acute inhalation toxicity</th>
<th>LC50 (Rat, male and female): 0.10 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 4 h</td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Assessment: The substance or mixture has no acute inhalation toxicity</td>
<td>Remarks: The toxicological data has been taken from products of similar composition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>LD50 (Rat, male and female): &gt; 5,000 mg/kg</th>
</tr>
</thead>
</table>

**propiconazole (ISO):**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat, male and female): 1,517 mg/kg</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Acute inhalation toxicity</th>
<th>LC50 (Rat, male and female): &gt; 5.8 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 4 h</td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Assessment: The substance or mixture has no acute inhalation toxicity</td>
<td>Remarks: The toxicological data has been taken from products of similar composition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>LD50 (Rat, male and female): &gt; 4,000 mg/kg</th>
</tr>
</thead>
</table>

**cyproconazole (ISO):**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat, male): 350 mg/kg</th>
</tr>
</thead>
</table>
Acute inhalation toxicity: LC50 (Rat, male and female): > 2.03 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
   Assessment: The substance or mixture has no acute dermal toxicity

poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]-hydroxy-:
   Acute oral toxicity: LD50 Oral (Rat): 5,000 mg/kg
   Assessment: The substance or mixture has no acute oral toxicity
   Acute dermal toxicity: LD50 Dermal (Rat): > 2,000 mg/kg
   Assessment: The substance or mixture has no acute dermal toxicity

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

Skin corrosion/irritation:

Product:
Species: Rabbit
Result: Mild skin irritation
Remarks: The toxicological data has been taken from products of similar composition.

Components:

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

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

cyproconazole (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: irritating
Remarks: The toxicological data has been taken from products of similar composition.

**Components:**

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

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

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

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.

propiconazole (ISO):
Species: Guinea pig
Result: May cause sensitisation by skin contact.

cyproconazole (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.

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

**cyproconazole (ISO):**
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.

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.

**propiconazole (ISO):**
Carcinogenicity - Assessment: Animal testing did not show any carcinogenic effects.

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

Reproductive toxicity

**Components:**

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

**propiconazole (ISO):**
Reproductive toxicity - Assessment: Animal testing did not show any effects on fertility. No toxicity to reproduction.
cyproconazole (ISO):
Reproductive toxicity - Assessment: Some evidence of adverse effects on development, based on animal experiments.

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.

STOT - repeated exposure
Components:
cyproconazole (ISO):

<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.</td>
</tr>
</tbody>
</table>

Repeated dose toxicity
Components:
chlorothalonil (ISO):
Remarks: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

propiconazole (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

<table>
<thead>
<tr>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>EC50 (Daphnia magna (Water flea)): 0.354 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure time: 48 h</td>
</tr>
</tbody>
</table>

Toxicity to algae: ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.985 mg/l
Exposure time: 72 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.305
Components:

chlorothalonil (ISO):

Toxicity to fish:
LC50 (Onchorhynchus 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:
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

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 bahia (Mysid shrimp)

M-Factor (Chronic aquatic toxicity): 10

propiconazole (ISO):

Toxicity to fish:
LC50 (Onchorhynchus mykiss (rainbow trout)): 4.3 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna Straus): 10.2 mg/l
Exposure time: 48 h

EC50 (Americamysis bahia (Mysid shrimp)): 0.51 mg/l
Exposure time: 96 h
Toxicity to algae: ErC50 (Pseudokirchneriella subcapitata (green algae)): 8.9 mg/l
Exposure time: 96 h
NOEC (Pseudokirchneriella subcapitata (green algae)): 0.13 mg/l
End point: Growth rate
Exposure time: 96 h

M-Factor (Acute aquatic toxicity): 1

Toxicity to microorganisms: EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity): NOEC: 0.068 mg/l
Exposure time: 95 d
Species: Cyprinodon variegatus (sheepshead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.11 mg/l
Exposure time: 28 d
Species: Americamysis bahia (Mysid shrimp)

M-Factor (Chronic aquatic toxicity): 1

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

Cyproconazole (ISO):
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 19 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 26 mg/l
Exposure time: 48 h

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 0.077 mg/l
Exposure time: 96 h
NOEC (Desmodesmus subspicatus (green algae)): 0.021 mg/l
Exposure time: 96 h
EC50 (Lemna gibba (gibbous duckweed)): > 0.2 mg/l
Exposure time: 7 d
NOEC (Lemna gibba (gibbous duckweed)): 0.025 mg/l
End point: Growth rate
Exposure time: 7 d

M-Factor (Acute aquatic toxicity): 10
Toxicity to fish (Chronic toxicity): NOEC: 0.305 mg/l
Exposure time: 93 d
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.023 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity): 1

poly(oxy-1,2-ethanediyl), -(2,4,6-tris(1-phenylethyl)phenyl)- -hydroxy-:
Toxicity to fish: LC50 (Danio rerio (zebra fish)): 21 mg/l
Exposure time: 96 h

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

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.

propiconazole (ISO):
Biodegradability: Result: Not readily biodegradable.

cyproconazole (ISO):
Biodegradability: Result: Not readily biodegradable.
Stability in water: Degradation half life: 5 d (20 °C)
Remarks: Product is not persistent.

12.3 Bioaccumulative potential

Components:
chlorothalonil (ISO):
Bioaccumulation: Remarks: Low bioaccumulation potential.
Partition coefficient: n-octanol/water: log Pow: 2.94 (25 °C)
propiconazole (ISO):
Bioaccumulation : Remarks: Low to medium mobility in soil.
Partition coefficient: n-octanol/water : log Pow: 3.72 (25 °C)

cyproconazole (ISO):
Bioaccumulation : Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water : log Pow: 3.1 (25 °C)

12.4 Mobility in soil

Components:

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

propiconazole (ISO):
Distribution among environmental compartments : Remarks: Low to medium mobility in soil.
Stability in soil : Dissipation time: 66 - 170 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

cyproconazole (ISO):
Distribution among environmental compartments : Remarks: Low to medium mobility in soil.
Stability in soil : Dissipation time: 100 - 124 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).

propiconazole (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).

poly(oxy-1,2-ethanediyl), -[2,4,6-tris(1-phenylethyl)phenyl]- -hydroxy-:
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
No data available

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.

Waste Code: 150110, packaging containing residues of or contaminated by dangerous substances

SECTION 14: Transport information

14.1 UN number
ADN: UN 3082
ADR: UN 3082
RID: UN 3082
14.2 UN proper shipping name

| ADN  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL) |
| ADR  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL) |
| RID  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL) |
| IMDG | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL) |
| IATA | : Environmentally hazardous substance, liquid, n.o.s. (CHLOROTHALONIL) |

14.3 Transport hazard class(es)

| ADN  | : 9 |
| ADR  | : 9 |
| RID  | : 9 |
| IMDG | : 9 |
| IATA | : 9 |

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

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

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

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

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

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:

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.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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
H301 : Toxic if swallowed.
H302 : Harmful if swallowed.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H330 : Fatal if inhaled.
H335 : May cause respiratory irritation.
H351 : Suspected of causing cancer.
H360D : May damage the unborn child.
H373 : May cause damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
H412 : Harmful to aquatic life with long lasting effects.

Full text of other abbreviations
Acute Tox. : Acute toxicity
Aquatic Acute : Acute aquatic toxicity
Aquatic Chronic : Chronic aquatic toxicity
Carc. : Carcinogenicity
### SAFETY DATA SHEET

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

**APACHE**

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<thead>
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<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>This version replaces all previous versions.</th>
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<td>8.0</td>
<td>06.02.2018</td>
<td>S1406114840</td>
<td>This version replaces all previous versions.</td>
</tr>
</tbody>
</table>

- Eye Dam: Serious eye damage
- Repr: Reproductive toxicity
- Skin Irrit: Skin irritation
- Skin Sens: Skin sensitisation
- STOT RE: Specific target organ toxicity - repeated exposure
- 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)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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; KECl - 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; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

#### Classification of the mixture:

<table>
<thead>
<tr>
<th>Classification of the mixture</th>
<th>Classification procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>H319</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>H317</td>
</tr>
<tr>
<td>Carc. 2</td>
<td>H351</td>
</tr>
<tr>
<td>Repr. 1B</td>
<td>H360D</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>H335</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>H400</td>
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</table>
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