Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Orius 250 EW

Synonyms

Tebuconazole 250 EW

Pure substance/mixture

Mixture

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

Recommended Use

Fungicide

Uses advised against

No information available

Details of the supplier of the safety data sheet

Supplier Address

ADAMA SOUTH AFRICA (PTY) LTD
Ground Floor, Simeka House
The Vineyards Office Estate
99 Jip de Jager Drive
Bellville 7530

For further information, please contact

Email address

SDS@ADAMA.COM

Emergency Telephone

+ 27 82 446 8946
+ 27 86 155 5777
+ 27 21 982 1460

Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Serious eye damage/eye irritation

Category 2 - (H319)

Reproductive toxicity

Category 2 - (H361)

Specific target organ toxicity (single exposure)

Category 3 - (H335)

Acute aquatic toxicity

Category 2 - (H401)

Chronic aquatic toxicity

Category 2 - (H410)

Flammable liquids

Category 4 - (H227)

Label Elements

Hazard pictograms
Signal word
Warning

Hazard Statements
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H361 - Suspected of damaging fertility or the unborn child if inhaled
H401 - Toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H227 - Combustible liquid

Precautionary Statements
P102 - Keep out of reach of children
P201 - Obtain special instructions before use
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P501 - Dispose of contents/container to an approved waste disposal plant
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P201 - Obtain special instructions before use
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

Other Hazards
No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>CAS No</th>
<th>EC No</th>
<th>GHS Classification</th>
<th>M-Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tebuconazole</td>
<td>25-27</td>
<td>107534-96-3</td>
<td>403-640-2</td>
<td>Acute Tox. 4 (H302) Repr. 2 (H361) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)</td>
<td>M=1  M=10</td>
</tr>
<tr>
<td>N,N-dimethyldecanamide</td>
<td>60-70</td>
<td>14433-76-2</td>
<td>238-405-1</td>
<td>Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Chronic 3 (H412)</td>
<td></td>
</tr>
</tbody>
</table>

Section 4: FIRST AID MEASURES

First aid measures

General advice
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). First aider: Pay attention to self-protection!

Inhalation
Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician.
Skin Contact  Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if necessary.

Eye contact  Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Ingestion  Do NOT induce vomiting. Rinse mouth. Drink plenty of water. If symptoms persist, call a physician.

Self-protection of the first aider  Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms  None known

Indication of any immediate medical attention and special treatment needed

Note to physicians  Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media  Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media  No information available.

Special hazards arising from the substance or mixture

No specific hazard known.

Advice for firefighters

In the event of fire, wear self-contained breathing apparatus
In the event of fire and/or explosion do not breathe fumes.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions  Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

For emergency responders  Use personal protection recommended in Section 8.

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for cleaning up  Take up mechanically, placing in appropriate containers for disposal.
Reference to other sections

Other Information
See also section 8,13

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Use with local exhaust ventilation.

General Hygiene Considerations
When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

National occupational exposure limits

Exposure controls

Engineering Controls
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection
Tight sealing safety goggles.

Hand Protection
Suitable chemical resistant gloves (EN 374) also with prolonged, direct contact (recommendation: protection index 6, corresponding > 480 minutes Permeability time (permeation) according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm).

Body Protection
Rubber boots, Apron, Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact, Gloves made of plastic or rubber.

Respiratory protection
Use only with adequate ventilation.

General Hygiene Considerations
When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Regular cleaning of equipment, work area and clothing is recommended.

Environmental exposure controls
Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES
Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>light yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5.1-6.1</td>
<td>CIPAC MT 75.3</td>
<td>aqueous solution, 1 %</td>
</tr>
<tr>
<td>Melting point/freezing</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiling point/boiling</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;79</td>
<td>CIPAC MT 12.2</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper/lower flammability</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or explosive limits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>0.9-1.0</td>
<td>CIPAC MT 3.2.1</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n-octanol/water) Log Pow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>357</td>
<td>EEC A.15</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>13.2590</td>
<td>ASTM D445-53T</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not an explosive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other Information

Bulk density g/ml : 
Surface tension mN/m : <60

Section 10: STABILITY AND REACTIVITY

Reactivity

Not available.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

To avoid thermal decomposition, do not overheat.

Incompatible Materials

Strong bases, Strong acids

Hazardous Decomposition Products

None under normal use conditions.

Section 11: TOXICOLOGY INFORMATION
Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Values</th>
<th>Species</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50 mg/kg: &gt; 2000</td>
<td>Rat</td>
<td>OECD 401</td>
<td></td>
</tr>
<tr>
<td>Dermal LD50 mg/kg: &gt; 2000</td>
<td>Rat</td>
<td>OECD 402</td>
<td></td>
</tr>
<tr>
<td>Inhalation LC50 mg/l/4h: &gt; 4.95</td>
<td>Rat</td>
<td>OECD 403</td>
<td>Maximum attainable concentration</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Non-irritating to the skin | Rabbit | OECD 404 |
Serious eye damage/eye irritation: Irritating to eyes | Rabbit | OECD 405 |
Respiratory/skin sensitization: Not a skin sensitizer | Guinea pig | OECD 406 |

Chronic toxicity

Germ cell mutagenicity
Chemical Name: Tebuconazole
Not classified

Carcinogenicity
Chemical Name: Tebuconazole
Not Carcinogenic

Reproductive toxicity
Chemical Name: Tebuconazole
H361d - Suspected of damaging the unborn child

STOT - single exposure
Chemical Name: Tebuconazole
No data available

STOT - repeated exposure
Chemical Name: Tebuconazole
No data available

Aspiration hazard
Chemical Name: Tebuconazole
No data available

Section 12: ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity

Acute toxicity

<table>
<thead>
<tr>
<th>Values</th>
<th>Species</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish 96-hour LC50 mg/l: 4.68</td>
<td>Rainbow trout</td>
<td>OECD 203</td>
<td>Static</td>
</tr>
<tr>
<td>Crustacea 48-hour EC50 mg/l: 16</td>
<td>Daphnia magna</td>
<td>OECD 202</td>
<td></td>
</tr>
<tr>
<td>Algae 72-hour EC50 mg/l: 9.12</td>
<td>D. Subspicatus</td>
<td>OECD 201</td>
<td></td>
</tr>
<tr>
<td>Other plants EC50 mg/l:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chronic aquatic toxicity

<table>
<thead>
<tr>
<th>Values</th>
<th>Species</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish NOEC mg/l:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea NOEC mg/l:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae NOEC mg/l:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other plants NOEC mg/l:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Terrestrial Toxicity

Birds Oral LD50 mg/kg
Chemical Name: Tebuconazole
1988 Bobwhite quail
Bees  Oral LD50  μg/bee
Chemical Name
Tebuconazole : 83.05 Oral

Persistence and degradability

<table>
<thead>
<tr>
<th>Abiotic Degradation</th>
<th>Values</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water DT50 days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>365</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Soil DT50 days
Chemical Name
Tebuconazole : 34.8

Biodegradation
Chemical Name
Tebuconazole : Not readily biodegradable OECD 301B

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Partition Coefficient (n-octanol/water)</th>
<th>Values</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition Coefficient (n-octanol/water) Log Pow</td>
<td>3.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tebuconazole</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bioconcentration factor (BCF)
Chemical Name
Tebuconazole : 78

Mobility in soil

<table>
<thead>
<tr>
<th>Adsorption/Desorption</th>
<th>Values</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>769</td>
<td></td>
<td>Koc</td>
</tr>
</tbody>
</table>

Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB

Other adverse effects

No information available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Improper disposal or reuse of this container may be dangerous and illegal.

Other Information
Waste codes should be assigned by the user based on the application for which the product was used.

Section 14: TRANSPORTATION INFORMATION
IMDG/IMO
UN/ID No * 3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( Tebuconazole )
Hazard Class 9
Packing Group III
Marine pollutant This material meets the definition of a marine pollutant Yes
Special precautions for user

RID/ADR
UN/ID No * 3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( Tebuconazole )
Hazard Class 9
Packing Group III
Environmental hazard Yes
Special precautions for user

ICAO/IATA
UN/ID No * 3082
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( Tebuconazole )
Hazard Class 9
Packing Group III
Environmental hazard Yes
Special precautions for user
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not Applicable

* Note: UN3077 & UN3082 – These products may be transported as non-dangerous goods under the special provisions of IMDG Code 2.10.2.7; ADR SP375 and ICAO/IATA A197 when packed in single or inner packaging of up to 5L for liquids or 5 kg or less for solids.

Section 15: REGULATORY INFORMATION
Safety, health and environmental regulations/legislation specific for the substance or mixture

Section 16: OTHER INFORMATION
Revision Note Changes made to the last version are labeled with this sign ***.

List of Acronyms
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CAS Number - Chemical Abstracts Service number
EC Number - EINECS and ELINCS Number
EINECS - European Inventory of Existing Commercial Substances
ELINCS - European List of notified Chemical Substances
IATA - International Air Transport Association
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG - International Maritime Dangerous Goods
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
OECD - Organization for Economic Co-operation and Development
PBT - Persistent, Bioaccumulative and Toxic substance
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
STOT - Specific Target Organ Toxicity
vPvB - Very Persistent and Very Bioaccumulative

Disclaimer
The information provided in this Material 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.

End of Safety Data Sheet