SAFETY DATA SHEET according to VO 1907/2006/EG, adapted by VO 453/2010/EG

Production date: 25.03.2011
Revision: 11.11.2013
Trade name: Blossom Protect™ Component B

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier
Trade name: Blossom Protect™ Component B
CAS-No.: not applicable

1.2 Relevant identified uses of the substance or mixture and uses advised against
Biological bactericide for the control of fire blight (Erwinia amylovora) in pome fruit in combination with component A.

1.3 Details of the supplier of the safety data sheet
Supplier: bio-ferm, Biotechnologische Entwicklung und Produktion GmbH
Address: Technopark 1B
A - 3430 Tulln
Country: Austria

Information contact:
Company: bio-ferm Biotechnologische Entwicklung und Produktion GmbH
Phone: +43 (0) 2272 660896-0
Fax: +43 (0) 2272 660896-11
Email: office@bio-ferm.com

1.4 Emergency telephone number:
Call local emergency information

2 HAZARDS IDENTIFICATION

2.1 Classification of the mixture:
The classification complies with actual legally binding EU Directives and is supplemented by company and literature data.

2.2 Label elements

Xi Irritant

Hazard determining component for labelling:
Aureobasidium pullulans DSM 14940
Aureobasidium pullulans DSM 14941

KEEP OUT OF REACH OF CHILDREN
READ THE LABEL BEFORE USING
CAUTION: POTENTIAL SENSITIZER
SAFETY DATA SHEET according to VO 1907/2006/EG, adapted by VO 453/2010/EG

Production date: 25.03.2011
Revision: 11.11.2013
Trade name: Blossom Protect™ Component B

Risk phrases:
R43

Safety phrases:
S2, S20/21, S22, S24, S37, S46, S56

Supplemental Hazard information (acc. to EU-Dir. 2003/82/EG)
none

2.3 Other hazards
Contains Aureobasidium pullulans DSM 14940 and DSM 14941. May produce an allergic reaction. Contains the allergen milk.

The substances contained in the product do are not classified as PBT- or vPvB-substance.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
this product is a mixture.

3.2 Mixtures
Substance name: Aureobasidium pullulans DSM 14940
CAS-No.: 67891-88-7
Concentration: 5\times 10^9 cfu/g (5-50%w/w)
Classification according to national law: Xi, R43

Substance name: Aureobasidium pullulans DSM 14941
CAS-Nr.: 67891-88-7
Concentration: 5\times 10^9 cfu/g (5-50%w/w)
Classification according to national law: Xi, R43

Full text of the risk phrases: see section 16.

4 FIRST-AID-MEASURES

4.1 Description of first aid measures
General information:
Remove from source of exposure. No specific treatment after contact with cells of A. pullulans is required since no specific clinical symptoms are known to occur. As a general precautionary measure, persons who may want to seek medical advice, should inform the physician about the identity of the fungus on species level, and may show the label of the packing as supporting information. In case of severely immunocomprised persons an antifungal treatment may be chosen despite the lacking infectiveness of this strain.
Following inhalation:
Remove from source of exposure. Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Following skin contact:
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Following eye contact:
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Following ingestion:
Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. If symptoms of indisposition persist, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed
Not recorded

4.3 Indication of any immediate medical attention and special treatment needed
Symptomatic treatment. According to the results of a test for minimum inhibitory concentration (MIC) Itraconazole treatment would provide sufficient efficacy against _Aureobasidium pullulans_.

5 FIRE FIGHTING MEASURES

5.1 Extinguishing media:
Suitable extinguishing media: CO₂, dry chemical powder, foam or water spray
Unsuitable extinguishing media: Not recorded

5.2 Special hazards arising from the substance or mixture
Not recorded

5.3 Advice for fire-fighters
Regarding the product no special protective equipment is necessary. Use protective equipment suitable to the situation.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Please notice instructions for person-related safety precautions and wear protective equipment (see 8). Avoid formation of dust.

6.2  Environmental precautions:
Do not let enter into drains/surface water bodies/ground water.

6.3  Methods and material for containment and cleaning up:
Collect spilled material with shovel, place into a clean container and cover container loosely. Prevent formation of dust. Place into lockable, labeled salvage container for disposal according to the regulations.

6.4  Reference to other sections:
Protective measures in Section 7 and 8.

7 HANDLING AND STORAGE

7.1  Precautions for safe handling:
Information for safe handling:
Comply with instructions for use. Misuse can lead to injury of health. While handling do not eat, drink or smoke. Prevent formation of dust. Ensure good ventilation/exhaustion at the workplace.

KEEP OUT OF REACH OF CHILDREN.
May cause sensitization.
Avoid contact with eyes, skin or clothing.
Avoid inhaling/breathing dusts.
Wear coveralls, shoes plus socks, water-proof gloves and NIOSH approved respirator with any N, R, P or HE filter for biological products when handling, applying, and during all cleanup and repair activities.
Early entry workers must wear long-sleeved shirts, long pants, shoes plus socks, and water-proof gloves until sprays have dried.
Wash thoroughly with soap and water after handling.
Remove contaminated clothing and wash before reuse.

7.2  Conditions for safe storage, including any incompatibilities
Store in tightly closed containers in a cool, well ventilated and dry place. Consider expiry date.
To prevent contamination store this product away from food or feed.
Store in a dry area inaccessible to children.
Store in original container only.
Keep container closed when not in use.

Information about storage in one common storage facility
Do not store food, beverages and animal feeding stuffs in the storage area.

Further information on storage conditions
Keep out of the reach of children and domestic animals.

Storage stability at room temperature (≤20°C): 10 months from date of manufacture
Storage stability at cold storage (≤8°C): 24 months from date of manufacture

7.3 Specific end uses
Biological bactericide for the control of fire blight (Erwinia amylovora) in pome fruit in combination with component A.

8 EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Control parameters
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls
8.2.1 Appropriate engineering controls
If ventilation on working space is insufficient an exhauster should be installed.

8.2.2 Personal protective equipment

Eye/Face protection
Safety goggles or face protection.

Skin protection
Rubber gloves or synthetic gloves.

Respiratory protection
In case of extensive formation of dust a protective dust mask is recommended.

Body protection
Protective work clothing (e.g. boots, long-sleeved body covering clothing).
SAFETY DATA SHEET according to VO 1907/2006/EG, adapted by VO 453/2010/EG

Production date: 25.03.2011
Revision: 11.11.2013
Trade name: Blossom Protect™ Component B

General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals. Avoid unnecessary contact with the product. Do not eat, drink or smoke at workplace and keep it tidy. Immediately remove all soiled and contaminated clothing. Wash hands before break and at the end of work. Avoid contact with eyes and skin. Do not inhale dust/smoke/mist.

8.2.3 Environmental exposure control
As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
DO NOT allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters. For guidance contact the Provincial Regulatory Agency.
DO NOT apply by air.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state: Granule
Colour: Off-white to light pink
Odour: similar to bread
Melting point/range (°C): Not applicable
Boiling point/range (°C): Not applicable
Flash point (°C): Not applicable
Ignition temperature (°C): Product is not flammable. (EEC A.10)
Danger of explosion: Product does not present an explosion hazard. (EEC A.14)
Solubility in/ Miscibility with water: Dispersible
pH-Wert (10g/l) at 20°C: 6.6

9.2 Other safety information
No further physical-chemical data were produced.

10 STABILITY AND REACTIVITY

10.1 Reactivity
Not determined

10.2 Chemical stability
The product is stable at room temperature (20°C) for 10 months and at cool storage (8°C) for 24 months.

10.3 Possibility of hazardous reactions
No dangerous reactions known if used according to specifications.

10.4 Conditions to avoid
For reasons of storage stability do not expose the product to temperatures above 40°C. Do not store the product above 20°C for a longer period. Keep dry. Consider information on expiry date on the product label!

10.5 Incompatible materials
not recorded

10.6 Hazardous decomposition products
No hazardous decomposition products under normal storage conditions known.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>&gt;2000 mg/kg (Rat)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>&gt;2000 mg/kg (Rat)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4h</td>
<td>&gt;5.18 mg/l (Rat)</td>
</tr>
</tbody>
</table>

Primary irritant effect
on the skin: Not irritating (rabbit, OECD 404)
on the eye: Not irritating (rabbit, OECD 405)

Corrosive effect
don tested

Sensitization
May cause sensitization by skin contact (guinea-pig, OECD 406)

Toxicity at frequent applications
don tested

Carcinogenicity
don tested

Mutagenicity
The strain DSM 14941 did not show mutagen characteristics in the Micronucleus Test in erythrocytes of mammals (EC B12).

Reproductive toxicity
not tested

Additional toxicological information
The strain DSM 14941 did not show infectivity in an oral (OPPTS 885.3050), inhalative (885.3150) and subcutaneous test (OPPTS 885.3200) on infectivity.

12 ECOLOGICAL INFORMATION

12.1 Toxicity
Aquatic toxicity
EC50/48h >200 mg/l (Water flea (Daphnia magna))
EC/LC50/21d >200 mg/l (Water flea (Daphnia magna))
EC50/7d >100 mg/l (Water lense (Lemna minor))
EC50/7d >250 mg/l (Water lense (Lemna gibba))
EC50/72h >100 mg/l (Algae (Pseudokirchneriella subcapitata))
EC50/96h >100 mg/l (Rainbow trout (Oncorhynchus mykiss))

Effects on earthworms
LC50/14d >1000 mg/kg soil (earthworm (Dendrobena hortensis))

Effects on spider mites
A laboratory test with the predatory mite Typhlodromus pyri resulted in a LR50 above the maximum application rate.

Effects on birds
LD50/30d >2000 mg/kg-bw*
ID50/30d >2000 mg/kg-bw*
* Data refer to a product which contains the strain Aureobasidium pullulans DSM 14941.

Effects on bees
LD50/22d >200 µg/bee
NOEC/22d 200 µg/bee

12.2 Persistence and degradability
Degradation in soil: The product is easily biodegradable.
Not hazardous to water.

12.3 Bioaccumulative potential
not tested

12.4 Mobility in soil
not tested

12.5 Results of PBT and vPvB assessment
not applicable

12.6 Other adverse effects
13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
1. Triple- or pressure rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. Dispose unwanted product in accordance with municipal or provincial regulations. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency.
   Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

14 TRANSPORT INFORMATION

14.1 UN-No
not applicable

14.2 Proper shipping name
not applicable

14.3 Class(es)
Maritime transport IMDG/GGV: Not classified
Air transport ICAO-TI and IATA-DGR: Not classified

14.4 Packing group
not applicable

14.5 Environmental hazards
ADR/RID-GGVS/E Class: Not classified
IMDG/GGV-Class: Not classified
ICAO/IATA-Class: Not classified

14.6 Special precautions for user
see Sections 6 to 8

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
The product is sold only in appropriate packaging.

15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the mixture
EU regulations
The product is classified according to EC guidelines.
National regulations
The classification is made according to national registration.

15.2 Chemical Safety Assessment
The mixture was not subject to a chemical safety assessment.

16 OTHER INFORMATION

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Road</td>
</tr>
<tr>
<td>AVV</td>
<td>Ordinance on the European Waste Catalogue</td>
</tr>
<tr>
<td>CAS No.</td>
<td>Chemical Abstracts Service Number</td>
</tr>
<tr>
<td>DSM</td>
<td>German Strain Collection for microorganism</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective concentration, which leads to a defined effect than death to 50 % of the tested population</td>
</tr>
<tr>
<td>EC B.#</td>
<td>OECD Guideline for Testing of Chemicals</td>
</tr>
<tr>
<td>EC</td>
<td>European community</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>GGVS</td>
<td>Regulation for dangerous goods on the road</td>
</tr>
<tr>
<td>GGVSee</td>
<td>Regulation for dangerous goods in lakes</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations</td>
</tr>
<tr>
<td>IBC-Code</td>
<td>International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk</td>
</tr>
<tr>
<td>ICAO-TI</td>
<td>International Civil Aviation Organisation - Technical instructions</td>
</tr>
<tr>
<td>ID50</td>
<td>The dose necessary to cause overt symptomatology in 50% of the test organisms</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Code for Dangerous Goods</td>
</tr>
<tr>
<td>LC50</td>
<td>The concentration required to kill 50% of the test organisms</td>
</tr>
<tr>
<td>LD50</td>
<td>The dose required to kill 50% of the test organisms</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
</tr>
<tr>
<td>OECD No.</td>
<td>OECD Guideline for Testing of Chemicals</td>
</tr>
<tr>
<td>ÖNORM</td>
<td>Standard published by the Austrian Standards Institute</td>
</tr>
<tr>
<td>OPPTS Nr.</td>
<td>Microbial Pesticide Test Guidelines (Office of Prevention, Pesticides and Toxic Substances (US Environmental Protection Agency))</td>
</tr>
<tr>
<td>PBT</td>
<td>persistent (P), bioaccumulative (B) and toxic (T) according to criteria of REACH Annex XIII</td>
</tr>
<tr>
<td>RID</td>
<td>Regulation for dangerous goods on international railways</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>vPvB</td>
<td>persistent (P) and bioaccumulative (B) according to criteria of REACH Annex XIII</td>
</tr>
</tbody>
</table>

Relevant R- and S-phrases (number and full text)

R43 May cause sensitization by skin contact.
SAFETY DATA SHEET according to VO 1907/2006/EG, adapted by VO 453/2010/EG

Production date: 25.03.2011
Revision: 11.11.2013
Trade name: Blossom Protect™ Component B

S2 Keep out of reach of children.
S20/21 When using do not eat, drink or smoke.
S22 Do not breathe dust.
S24 Avoid contact with skin
S37 Wear suitable gloves.
S46 If swallowed, seek medical advice immediately and show this container or label.
S56 Dispose of this material and its container to hazardous or special waste collection point.

Further information
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Indication of changes
-