SAFETY DATA SHEET

LUNA SENSATION

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

1.1 Product identifier
Trade name LUNA SENSATION
Product code (UVP) 84469882

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use Fungicide
EPA-Nr. HSR100998

1.3 Details of the supplier of the safety data sheet
Supplier Bayer New Zealand Limited
3 Argus Place, Hillcrest
Auckland 0627
New Zealand
Telephone 0800 428 246
Telefax (09) 441 8645

1.4 Emergency telephone no.
Emergency Number 0800 734 607 (24hr)
Global Incident Response Hotline (24h) +1 (760) 476-3964 (Company 3E for Bayer AG, Crop Science Division)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classified as hazardous according to the criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001

6.1D H302 Harmful if swallowed.

6.9B H373 May cause damage to organs through prolonged or repeated exposure.

9.1A H410 Very toxic to aquatic life with long lasting effects.

9.3C H433 Harmful to terrestrial vertebrates.

2.2 Label elements
Labelling in accordance with Hazardous Substances Identification Regulations 2001
Hazard label for supply/use required.
Signal word: Warning

Hazard statements
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
H433 Harmful to terrestrial vertebrates.

Precautionary statements
P102 Keep out of reach of children.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P391 Collect spillage.
P501 Dispose of contents/container in accordance with local regulation.

2.3 Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature
Suspension concentrate (=flowable concentrate)(SC)
Fluopyram/Trifloxystrobin 250:250 g/l

Hazardous components

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>Conc. [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluopyram</td>
<td>658066-35-4</td>
<td>21,37</td>
</tr>
<tr>
<td>Trifloxystrobin</td>
<td>141517-21-7</td>
<td>21,37</td>
</tr>
<tr>
<td>1,2-Benzisothiazol-3(2H)-one</td>
<td>2634-33-5</td>
<td>&gt; 0,005 – &lt; 0,05</td>
</tr>
<tr>
<td>Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one</td>
<td>55695-84-9</td>
<td>&gt; 0,0002 – &lt; 0,0015</td>
</tr>
</tbody>
</table>

Further information

| Trifloxystrobin | 141517-21-7 | M-Factor: 100 (acute) |

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.
Inhalation: Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.

Skin contact: Wash off thoroughly with plenty of soap and water, if available with polyethylene glycol 400, subsequently rinse with water. If symptoms persist, call a physician.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: To date no symptoms are known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. There is no specific antidote.

Contact the National Poisons and Hazardous Chemicals Information center in Dunedin, PO Box 913, Dunedin. Phone 0800 POISON (0800 764 766).

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable: High volume water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire the following may be released: Hydrogen chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Hydrogen fluoride, Carbon monoxide (CO), Nitrogen oxides (NOx)

5.3 Advice for firefighters

Further information: Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions: Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.
6.2 Environmental precautions
Do not allow to get into surface water, drains and ground water.

6.3 Methods and materials for containment and cleaning up
Methods for cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

6.4 Reference to other sections
Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Advice on safe handling
Use only in area provided with appropriate exhaust ventilation.

Hygiene measures
Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands immediately after work, if necessary take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers
Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. Keep away from direct sunlight. Protect from frost.

Advice on common storage
Keep away from food, drink and animal feedingstuffs.

Suitable materials
HDPE (high density polyethylene)

7.3 Specific end use(s)
Refer to the label and/or leaflet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluopyram</td>
<td>658066-35-4</td>
<td>0.34 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Trifloxystrobin</td>
<td>141517-21-7</td>
<td>2.7 mg/m³ (SK-SEN)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>1,2-Propanediol (Particulate.)</td>
<td>57-55-6</td>
<td>10 mg/m³ (TWA)</td>
<td>07 2011</td>
<td>NZ OEL</td>
</tr>
<tr>
<td>1,2-Propanediol (Vapor and particulates.)</td>
<td>57-55-6</td>
<td>474 mg/m³/150 ppm (TWA)</td>
<td>07 2011</td>
<td>NZ OEL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"
8.2 Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection
Respiratory protection is not required under anticipated circumstances of exposure. Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Hand protection
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.
Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material
Nitrile rubber
Rate of permeability
> 480 min
Glove thickness
> 0,4 mm
Protective index
Class 6
Directive
Protective gloves complying with EN 374.

Eye protection
Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

Skin and body protection
Wear standard coveralls and Category 3 Type 6 suit.
If there is a risk of significant exposure, consider a higher protective type suit.
Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.
If chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form
suspension
Colour
white to beige
Odour
characteristic
Odour Threshold
No data available
pH
5,0 - 8,0 at 100 % (23 °C)
Flash point
> 100 °C
Ignition temperature
380 °C
Minimum ignition energy: Not applicable
Upper explosion limit: No data available
Lower explosion limit: No data available
Vapour pressure: No data available
Evaporation rate: No data available
Relative vapour density: No data available
Density: ca. 1.17 g/cm³ at 20 °C
Water solubility: suspensive
Partition coefficient: n-octanol/water: Not applicable
Partition coefficient: n-octanol/water: Fluopyram: log Pow: 3.3
Trifloxystrobin: log Pow: 4.5 at 25 °C
Surface tension: 38 mN/m at 25 °C
Determined in the undiluted form.
Oxidizing properties: No oxidizing properties
Explosivity: Not explosive
92/69/EEC, A.14 / OECD 113
9.2 Other information: Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Thermal decomposition: Stable under normal conditions.
10.2 Chemical stability: Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions: No hazardous reactions when stored and handled according to prescribed instructions.
10.4 Conditions to avoid: Extremes of temperature and direct sunlight.
10.5 Incompatible materials: Store only in the original container.
10.6 Hazardous decomposition products: No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute oral toxicity: LD50 (Rat) 2.000 mg/kg
Acute inhalation toxicity: LC50 (Rat) > 1,7 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
Highest attainable concentration.
No deaths

**Acute dermal toxicity**
LD50 (Rat) > 2.000 mg/kg

**Skin irritation**
No skin irritation (Rabbit)

**Eye irritation**
No eye irritation (Rabbit)

**Sensitisation**
Non-sensitizing. (Mouse)
OECD Test Guideline 429, local lymph node assay (LLNA)

**Assessment STOT Specific target organ toxicity – single exposure**
Fluopyram: Based on available data, the classification criteria are not met.
Trifloxystrobin: Based on available data, the classification criteria are not met.

**Assessment STOT Specific target organ toxicity – repeated exposure**
Fluopyram did not cause specific target organ toxicity in experimental animal studies.
Trifloxystrobin did not cause specific target organ toxicity in experimental animal studies.

**Assessment mutagenicity**
Fluopyram was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Trifloxystrobin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

**Assessment carcinogenicity**
Fluopyram caused at high dose levels an increased incidence of tumours in rats in the following organ(s): Liver.
Fluopyram caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Thyroid.
The tumours seen with Fluopyram were caused through a non-genotoxic mechanism, which is not relevant at low doses. The mechanism that triggers these tumours is not relevant to humans.
Trifloxystrobin was not carcinogenic in lifetime feeding studies in rats and mice.

**Assessment toxicity to reproduction**
Fluopyram caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Fluopyram is related to parental toxicity.
Trifloxystrobin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Trifloxystrobin is related to parental toxicity.

**Assessment developmental toxicity**
Fluopyram caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Fluopyram are related to maternal toxicity.
Trifloxystrobin caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Trifloxystrobin are related to maternal toxicity.

**Aspiration hazard**
Based on available data, the classification criteria are not met.

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1 Toxicity
**Toxicity to fish**
LC50 (Oncorhynchus mykiss (rainbow trout)) 0.091 mg/l
Exposure time: 96 h

**Toxicity to aquatic invertebrates**
EC50 (Daphnia magna (Water flea)) 0.086 mg/l
Exposure time: 48 h

**Toxicity to aquatic plants**
IC50 (Raphidocelis subcapitata (freshwater green alga)) 0.292 mg/l
Growth rate; Exposure time: 72 h

**12.2 Persistence and degradability**

**Biodegradability**

Fluopyram:
Not rapidly biodegradable

Trifloxystrobin:
Not rapidly biodegradable

**Koc**

Fluopyram: Koc: 279

Trifloxystrobin: Koc: 2377

**12.3 Bioaccumulative potential**

**Bioaccumulation**

Fluopyram: Bioconcentration factor (BCF) 18
Does not bioaccumulate.

Trifloxystrobin: Bioconcentration factor (BCF) 431
Does not bioaccumulate.

**12.4 Mobility in soil**

**Mobility in soil**

Fluopyram: Moderately mobile in soils

Trifloxystrobin: Slightly mobile in soils

**12.5 Results of PBT and vPvB assessment**

**PBT and vPvB assessment**

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

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

**12.6 Other adverse effects**

**Additional ecological information**
No other effects to be mentioned.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**
Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.

**Contaminated packaging**
Triple rinse containers. Recycle if possible. If allowed under local authority, burn if circumstances, especially wind direction permit, otherwise crush and bury in an approved local authority facility. Do not use container for any other purpose.
SECTION 14: TRANSPORT INFORMATION

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

**ADR/RID/ADN**
14.1 UN number 3082
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION)
14.3 Transport hazard class(es) 9
14.4 Packing group III
14.5 Environm. Hazardous Mark YES
Hazchem Code 3Z

**IMDG**
14.1 UN number 3082
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION)
14.3 Transport hazard class(es) 9
14.4 Packing group III
14.5 Marine pollutant YES

**IATA**
14.1 UN number 3082
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION)
14.3 Transport hazard class(es) 9
14.4 Packing group III
14.5 Environm. Hazardous Mark YES

14.6 Special precautions for user
See sections 6 to 8 of this Safety Data Sheet.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
No transport in bulk according to the IBC Code.

SECTION 15: REGULATORY INFORMATION

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

Further information
HSNNO approval-Nr. HSR100998
HSNNO Controls See www.epa.govt.nz
ACVM Reg. P9161
ACVM Condition See www.foodsafety.govt.nz
SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

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
ATE         Acute toxicity estimate
CAS-Nr.     Chemical Abstracts Service number
Conc.       Concentration
ECx         Effective concentration to x %
EINECS      European inventory of existing commercial substances
ELINCS      European list of notified chemical substances
EN          European Standard
EU          European Union
IATA        International Air Transport Association
IBC         International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx         Inhibition concentration to x %
IMDG        International Maritime Dangerous Goods
LCx         Lethal concentration to x %
LDx         Lethal dose to x %
LOEC/LOEL   Lowest observed effect concentration/level
MARPOL      MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.      Not otherwise specified
NOEC/NOEL   No observed effect concentration/level
OECD        Organization for Economic Co-operation and Development
RID         Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA         Time weighted average
UN          United Nations
WHO         World health organisation

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe products in terms of their safety requirements. The above details do not imply any guarantee concerning composition, properties or performance of the product.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.