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

Product identifier
Trade name LUNA® TRANQUILITY
Product code (UVP) 79111894
SDS Number 102000017503
EPA Registration No. 264-1085

Relevant identified uses of the substance or mixture and uses advised against
Use Fungicide
Restrictions on use See product label for restrictions.

Information on manufacturer
Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards
No particular hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluopyram</td>
<td>658066-35-4</td>
<td>11.30</td>
</tr>
<tr>
<td>Pyrimethanil</td>
<td>53112-28-0</td>
<td>33.80</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>5.40</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures
General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

Skin contact Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes.

Ingestion Call a physician or poison control center immediately.

Most important symptoms and effects, both acute and delayed
Symptoms No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed
Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

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

Unsuitable High volume water jet

Special hazards arising from the substance or mixture In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NOx)

Advice for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

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

Flash point No flash point - Determination conducted up to the boiling point.
Autoignition temperature: 560 °C / 1040 °F
Lower explosion limit: no data available
Upper explosion limit: no data available
Explosivity: Not explosive

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions: Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

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.

Additional advice: Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

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

Precautions for safe handling

Advice on safe handling: Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures: Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly with soap and water after handling.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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 (OES BCS)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Pyrimethanil</td>
<td>53112-28-0</td>
<td>5.6 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>1,2-Propanediol (Vapor.)</td>
<td>57-55-6</td>
<td>1000 ug/m³ (ST ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol (Vapor.)</td>
<td>57-55-6</td>
<td>50 ppb (AN ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol (Vapor.)</td>
<td>57-55-6</td>
<td>500 ppb (ST ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol (Aerosol.)</td>
<td>57-55-6</td>
<td>100 ug/m³ (AN ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³ (TWA)</td>
<td>2010</td>
<td>WEEL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

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 When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Safety glasses with side-shields

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance white to beige

Physical State suspension

Odor characteristic
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>pH</td>
<td>5.0 - 8.5 at 100 % (23 °C)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>ca. 1.11 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting / Freezing Point</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
<tr>
<td>Minimum Ignition Energy</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>220 - 350 mPa.s at 20 °C Velocity gradient 20 /s</td>
</tr>
<tr>
<td>Flash point</td>
<td>No flash point - Determination conducted up to the boiling point.</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>560 °C / 1040 °F</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Explosivity</td>
<td>Not explosive 92/69/EEC, A.14 / OECD 113</td>
</tr>
<tr>
<td>Other information</td>
<td>Further safety related physical-chemical data are not known.</td>
</tr>
</tbody>
</table>

**SECTION 10: STABILITY AND REACTIVITY**

**Reactivity**

Thermal decomposition: Stable under normal conditions.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: No hazardous reactions when stored and handled according to prescribed instructions.

Conditions to avoid: Extremes of temperature and direct sunlight.

Incompatible materials: Store only in the original container.

Hazardous decomposition products: No decomposition products expected under normal conditions of use.
SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes
Ingestion, Inhalation, Skin contact

Immediate Effects

Eye
May cause eye irritation.

Skin
Harmful if absorbed through skin.

Ingestion
Harmful if swallowed.

Inhalation
Harmful if inhaled.

Information on toxicological effects

Acute oral toxicity
LD50 (rat) > 2,000 mg/kg

Acute inhalation toxicity
LC50 (rat) > 1.973 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
Highest attainable concentration.

LC50 (rat) > 8.0 mg/l
Exposure time: 1 h
Determined in the form of liquid aerosol.
Extrapolated from the 4 hr LC50.

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 repeated dose toxicity

Fluopyram did not cause specific target organ toxicity in experimental animal studies.
Pyrimethanil did not cause any significant specific adverse effects or target organ toxicity in subchronic toxicity studies.

Assessment Mutagenicity

Fluopyram was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Pyrimethanil 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.
Pyrimethanil was not carcinogenic in lifetime feeding studies in mice. Pyrimethanil caused at high dose levels an increased incidence of tumours in rats in the following organ(s): thyroid. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.

ACGIH
None.
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. Pyrimethanil did not cause reproductive toxicity in a two-generation study in rats.

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. Pyrimethanil did not cause developmental toxicity in rats and rabbits.

Further information
Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
LC50 (Rainbow trout (Oncorhynchus mykiss)) 10.56 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient pyrimethanil.

LC50 (Rainbow trout (Oncorhynchus mykiss)) > 2 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient fluopyram.
No acute toxicity was observed at its limit of water solubility.

Toxicity to aquatic invertebrates
EC50 (Water flea (Daphnia magna)) 2.9 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient pyrimethanil.

EC50 (Water flea (Daphnia magna)) > 20 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient fluopyram.
No acute toxicity was observed at its limit of water solubility.

Toxicity to aquatic plants
EC50 (Pseudokirchneriella subcapitata) 8.9 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient fluopyram.

IC50 (Pseudokirchneriella subcapitata) 1.2 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient pyrimethanil.

### Biodegradability
- Fluopyram: Not rapidly biodegradable
- Pyrimethanil: Not rapidly biodegradable

### Koc
- Fluopyram: Koc: 279
- Pyrimethanil: Koc: 301

### Bioaccumulation
- Fluopyram: Bioconcentration factor (BCF) 18; Does not bioaccumulate.
- Pyrimethanil: Does not bioaccumulate.

### Mobility in soil
- Fluopyram: Moderately mobile in soils
- Pyrimethanil: Moderately mobile in soils

### Additional ecological information
- No other effects to be mentioned.

### Environmental precautions
- Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.
- Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
- Do not apply when weather conditions favor runoff or drift.
- Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites.
- Apply this product as specified on the label.

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### Product
Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law.
If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

#### Contaminated packaging
- Do not re-use empty containers.
- Triple rinse containers.
- Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities.
- If burned, stay out of smoke.
- Follow advice on product label and/or leaflet.

#### RCRA Information
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user’s responsibility. RCRA classification may apply.

## SECTION 14: TRANSPORT INFORMATION

49CFR
- Not dangerous goods / not hazardous material
IMDG
UN number 3082
Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PYRIMETHANIL SOLUTION)

IATA
UN number 3082
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PYRIMETHANIL SOLUTION)

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.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-1085
US Federal Regulations
TSCA list 1,2-Propanediol 57-55-6
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D) None.
SARA Title III - Section 302 - Notification and Information None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting None.
US States Regulatory Reporting
CA Prop65 This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
1,2-Propanediol 57-55-6 MN

Canadian Regulations
Canadian Domestic Substance List None.

Environmental CERCLA
None.

Clean Water Section 307 Priority Pollutants
None.

Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to
certain labeling requirements under federal pesticide law. These requirements differ from the classification
criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide
chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if swallowed, inhaled or absorbed through the skin.
Avoid contact with skin, eyes and clothing.
Avoid breathing spray mist.
Remove and wash contaminated clothing before re-use.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 1  Flammability - 1  Instability - 0  Others - none

Health - 1  Flammability - 1  Physical Hazard - 0  PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard
(29CFR1910.1200)

Revision Date: 06/11/2014

This information is provided in good faith but without express or implied warranty. The customer assumes
all responsibility for safety and use not in accordance with label instructions. The product names are
registered trademarks of Bayer.