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

Product identifier
Trade name PROSARO® 421 SC FUNGICIDE
Product code (UVP) 06011496
SDS Number 102000014618
EPA Registration No. 264-862

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

Information on supplier
Supplier Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Reproductive toxicity: Category 2
Acute toxicity(Inhalation): Category 4

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Warning
Hazard statements
Suspected of damaging fertility or the unborn child.
Harmful if inhaled.
Precautionary statements
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood. Wear protective gloves/ protective clothing/ eye protection/ face protection. Avoid breathing mist/ vapours. Use only outdoors or in a well-ventilated area. If exposed or concerned: Get medical advice/ attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell. Store locked up. Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothioconazole</td>
<td>178928-70-6</td>
<td>19.0</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>107534-96-3</td>
<td>19.0</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. Call a physician or poison control center immediately.

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. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Rinse out mouth and give water in small sips to drink. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms
To date no symptoms are known.
SAFETY DATA SHEET

PROSARO® 421 SC FUNGICIDE

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
Water, Foam, Carbon dioxide (CO2), Dry chemical
Unsuitable
None known.

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), Carbon monoxide (CO), Sulphur oxides, Nitrogen oxides (NOx)

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

Further information
Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point
> 100 °C
Not relevant; aqueous solution

Auto-ignition temperature
No data available

Lower explosion limit
No data available

Upper explosion limit
No data available

Explosivity
Not applicable

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. If material is accidentally spilled, 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 Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

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 and put on clean clothing.

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>Prothioconazole</td>
<td>178928-70-6</td>
<td>50µg/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Prothioconazole</td>
<td>178928-70-6</td>
<td>5µg/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Prothioconazole</td>
<td>178928-70-6</td>
<td>1.4 mg/m³ (SK-ABS)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>107534-96-3</td>
<td>5µg/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>107534-96-3</td>
<td>50µg/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>107534-96-3</td>
<td>0.2 mg/m³ (SK-ABS)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>5 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>(Respirable fraction.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>15 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>(Total dust.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Glycerine
(Total dust and mist.)  56-81-5  10 mg/m³ (TWA)  06 2008  TN OEL

Glycerine
(Respirable fraction and dust or fume.)  56-81-5  5 mg/m³ (TWA)  06 2008  TN OEL

Glycerine  56-81-5  1000 ug/m³ (ST ESL)  03 2014  TX ESL

Glycerine  56-81-5  50 ug/m³ (ST ESL)  03 2014  TX ESL

Glycerine  56-81-5  100 ug/m³ (AN ESL)  03 2014  TX ESL

Glycerine  56-81-5  5 ug/m³ (AN ESL)  03 2014  TX ESL

*OES BCS: Internal Bayer AG, Crop Science Division "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/tepido water.

Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance  white to light beige

Physical State  suspension

Odor  characteristic

Odour Threshold  No data available

pH  7.5 - 7.9 at 10 % (23 °C) (deionized water) aqueous suspension

Vapor Pressure  No data available

Vapor Density (Air = 1)  No data available
Density 1.11 g/cm³ at 20 °C
Evaporation rate No data available
Boiling Point No data available
Melting / Freezing Point No data available
Water solubility soluble
Minimum Ignition Energy Not applicable
Decomposition temperature Not applicable
Partition coefficient: n-octanol/water No data available
Viscosity 500 - 1,500 mPa.s at 20 °C
Flash point > 100 °C
Not relevant; aqueous solution
Auto-ignition temperature No data available
Lower explosion limit No data available
Upper explosion limit No data available
Explosivity Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition Not applicable
Chemical stability Stable under normal conditions.
Possibility of hazardous reactions No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid Heat, flames and sparks.
Incompatible materials No data available
Hazardous decomposition products No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Ingestion, Inhalation, Eye contact, Skin Absorption
Immediate Effects Eye Moderate eye irritation.
Skin
May cause slight irritation. 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) > 2.18 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
No deaths

Acute dermal toxicity
LD50 (Rat) > 5,050 mg/kg

Skin irritation
No skin irritation (Rabbit)

Eye irritation
Minimally irritating. (Rabbit)

Sensitisation
Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Prothioconazole did not cause specific target organ toxicity in experimental animal studies.
Tebuconazole did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.
Tebuconazole caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.

ACGIH
None.

NTP
None.

IARC
None.

OSHA
None.

Assessment toxicity to reproduction

Prothioconazole 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 Prothioconazole is related to parental toxicity.
Tebuconazole 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 Tebuconazole is related to parental toxicity.

**Assessment developmental toxicity**

Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity. Tebuconazole caused developmental toxicity only at dose levels toxic to the dams. Tebuconazole caused an increased incidence of post implantation losses, an increased incidence of non-specific malformations.

**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**

<table>
<thead>
<tr>
<th>Species</th>
<th>LC50 (mg/l)</th>
<th>Exposure time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncorhynchus mykiss (rainbow trout)</td>
<td>1.83</td>
<td>96</td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient prothioconazole.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient tebuconazole.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepomis macrochirus (Bluegill sunfish)</td>
<td>5.7</td>
<td>96</td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient tebuconazole.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Toxicity to aquatic invertebrates**

<table>
<thead>
<tr>
<th>Species</th>
<th>LC50 (mg/l)</th>
<th>Exposure time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna (Water flea)</td>
<td>1.3</td>
<td>48</td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient prothioconazole.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient tebuconazole.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Toxicity to aquatic plants**

<table>
<thead>
<tr>
<th>Species</th>
<th>EC50 (mg/l)</th>
<th>Exposure time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raphidocelis subcapitata (freshwater green alga)</td>
<td>2.18</td>
<td>72</td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient prothioconazole.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>The value mentioned relates to the active ingredient tebuconazole.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Biodegradability**

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothioconazole</td>
<td>Not rapidly biodegradable</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>Not rapidly biodegradable</td>
</tr>
</tbody>
</table>

**Koc**

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Koc (mL/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothioconazole</td>
<td>1765</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>769</td>
</tr>
</tbody>
</table>
Bioaccumulation
Prothioconazole: Bioconcentration factor (BCF) 19
Does not bioaccumulate.
Tebuconazole: Bioconcentration factor (BCF) 35 - 59
Does not bioaccumulate.

Mobility in soil
Prothioconazole: Slightly mobile in soils
Tebuconazole: Slightly mobile in soils

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.
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
Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.

Contaminated packaging
Triple rinse containers.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
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. (TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

IATA
UN number 3082
Class 9
SAFETY DATA SHEET

PROSARO® 421 SC FUNGICIDE

Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEBUCONAZOLE, PROTHIOCONAZOLE 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.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-862
US Federal Regulations
TSCA list
None.
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
None.

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
Tebuconazole 107534-96-3

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.
- Moderate eye irritation.
- Avoid contact with skin, eyes and clothing.
- Avoid inhalation of vapour or mist.
- Wash thoroughly with soap and water after handling.
- Remove and wash contaminated clothing before re-use.

### SECTION 16: OTHER INFORMATION

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>49CFR</td>
<td>Code of Federal Regulations, Title 49</td>
</tr>
<tr>
<td>ACGIH</td>
<td>US. ACGIH Threshold Limit Values</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute toxicity estimate</td>
</tr>
<tr>
<td>CAS-Nr.</td>
<td>Chemical Abstracts Service number</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
</tr>
<tr>
<td>EINECS</td>
<td>European inventory of existing commercial substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European list of notified chemical substances</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>N.O.S.</td>
<td>Not otherwise specified</td>
</tr>
<tr>
<td>NTP</td>
<td>US. National Toxicology Program (NTP) Report on Carcinogens</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>TDG</td>
<td>Transportation of Dangerous Goods</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>WHO</td>
<td>World health organisation</td>
</tr>
</tbody>
</table>

**NFPA 704 (National Fire Protection Association):**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Hazard</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

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

**Reason for Revision:** The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 11: Toxicological Information.

**Revision Date:** 02/09/2017

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