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

Product identifier
Trade name PROSARO® 421 SC FUNGICIDE
Product code (UVP) 85400797
SDS Number 102000033570
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
USA
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.  
Protect from sunlight.  
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>
<tr>
<td>Docusate sodium</td>
<td>577-11-7</td>
<td>1.75</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.
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 High volume water jet

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), Sulphur oxides, Carbon monoxide (CO), Carbon dioxide (CO2), 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 the product 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. Keep away from direct sunlight.

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

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>1.4 mg/m3 (SK-ABS)</td>
<td></td>
<td>OES BCS*</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>
</tbody>
</table>

*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/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: white to beige
Physical State: Liquid
Odor: characteristic
Odour Threshold: No data available
pH: 5.5 - 7.0 (100 %) (23 °C)
Vapor Pressure: No data available
Vapor Density (Air = 1): No data available
Density: ca. 1.14 g/cm³ (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: 250 - 550 mPa.s (20 °C) Velocity gradient 20 /s
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
Other information: Further safety related physical-chemical data are not known.
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition  Not applicable
Chemical stability  Stable under recommended storage conditions.
Possibility of hazardous reactions  No dangerous reaction known under conditions of normal use.

Conditions to avoid  Extremes of temperature and direct sunlight. Freezing

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.
   highest concentration tested
   No deaths
Acute dermal toxicity  LD50 (Rat) > 5,050 mg/kg
Skin corrosion/irritation  No skin irritation (Rabbit)
Serious eye damage/eye irritation  Minimally irritating. (Rabbit)
Respiratory or skin sensitisation  Skin: 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
LC50 (Oncorhynchus mykiss (rainbow trout)) 1.83 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient prothioconazole.
LC50 (Oncorhynchus mykiss (rainbow trout)) 4.4 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient tebuconazole.

**Toxicity to aquatic invertebrates**

LC50 (Lepomis macrochirus (Bluegill sunfish)) 5.7 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient tebuconazole.

Toxicity to aquatic invertebrates

LC50 (Daphnia magna (Water flea)) 1.3 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient prothioconazole.

LC50 (Daphnia magna (Water flea)) 4.2 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient tebuconazole.

**Toxicity to aquatic plants**

EC50 (Raphidocelis subcapitata (freshwater green alga)) 3.8 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient tebuconazole.

ErC50 (Skeletonema costatum) 0.03278 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient prothioconazole.

EC10 (Skeletonema costatum) 0.01427 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient prothioconazole.

**Biodegradability**

Prothioconazole: Not rapidly biodegradable
Tebuconazole: Not rapidly biodegradable

**Koc**

Prothioconazole: Koc: 1765
Tebuconazole: Koc: 769

**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

**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.
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
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
Water 7732-18-5
Glycerine 56-81-5
Docusate sodium 577-11-7
Polyethylene-polypropylene copolymer 9003-11-6

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D) Not applicable.

SARA Title III - Section 302 - Notification and Information
None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
Magnesium nitrate 10377-60-3 10000lbs

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
Glycerine 56-81-5 MN, RI
1,2-Propanediol 57-55-6 MN, RI
Glycerine 56-81-5 MN, RI
Magnesium nitrate 10377-60-3 CT, NJ, RI
Sodium hydroxide 1310-73-2 CA, CT, IL, MN, NJ, RI
Glutaral 111-30-8 CA, MN, RI

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

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

NFPA 704 (National Fire Protection Association):

Health - 2  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: The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 7: Handling and Storage. Section 10: Stability and reactivity. Reviewed and updated for general editorial purposes.

Revision Date: 09/04/2019

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