Bayer CropScience

Material Safety Data Sheet

PROPULSE(TM)

MSDS Number: 102000021214
MSDS Version 2.2
Revision Date: 02/05/2012
Print Date: 02/06/2012

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name	PROPULSE(TM)
MSDS Number	102000021214
Product code (UVP)	79658613
EPA Registration No.	264-1084
Product Use	Fungicide

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview	Caution! Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.
Physical State	liquid
Odor	mild sweet
Appearance	white to light beige
Exposure routes	Eye contact, Skin Absorption, Ingestion, Inhalation
Immediate Effects	
skin	Harmful if absorbed through skin. Avoid contact with skin, eyes and clothing.
Ingestion	Harmful if swallowed. Do not take internally.
Inhalation	Harmful if inhaled. Avoid breathing spray mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects. This product or its components may have long term (chronic) health effects.
Potential Environmental Effect	Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Average % by Weight
Fluopyram	658066-35-4	17.40
Prothioconazole	178928-70-6	17.40
1,2-Propanediol	57-55-6	8.70
Polyethylene-polypropylene copolymer	9003-11-6	2.10

SECTION 4. FIRST AID MEASURES

General When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye 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.

skin 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.

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

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.

Notes to physician
Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

Flash point > 93.3 °C / 199.9 °F

Autoignition temperature no data available

Lower Flammability Limit no data available

Upper Flammability Limit no data available

Fire and Explosion Hazards	In the event of fire the following may be released: Hydrogen chloride (HCl) Hydrogen cyanide (hydrocyanic acid) Hydrogen fluoride Carbon monoxide (CO) Carbon dioxide (CO2) Nitrogen oxides (NOx) Sulphur oxides
Suitable extinguishing media	Water spray, Carbon dioxide (CO2), Foam, Sand
Fire Fighting Instructions	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. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

SECTION 7. HANDLING AND STORAGE

Handling procedures	Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Storing Procedures	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.
Work/Hygienic Procedures	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.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection 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. Train employees in safe use of the product.

Eye/Face Protection Safety glasses with side-shields

Hand protection Chemical resistant nitrile rubber gloves

Body Protection Wear long-sleeved shirt and long pants and shoes plus socks.

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.

Exposure Limits

Prothioconazole	178928-70-6	OES BCS*	TWA	1.4 mg/m3
1,2-Propanediol	57-55-6	WEEL	TWA	10 mg/m3
		TX ESL	ST ESL	20 ug/m3
		TX ESL	ST ESL	500 ppm
		TX ESL	AN ESL	2 ug/m3
		TX ESL	AN ESL	50 ppm

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance white to light beige

Physical State liquid

Odor mild sweet

pH 4 - 6 (10 %)

Vapor Pressure no data available

Vapor Density (Air = 1) no data available

Density 1.15 g/cm³

Evaporation rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Minimum Ignition Energy	no data available
Decomposition temperature	no data available
Partition coefficient: n-octanol/water	no data available
Viscosity	250 - 425 mPa.s

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	freezing
Incompatibility	no data available
Hazardous Decomposition Products	Thermal decomposition can lead to release of: Hydrogen chloride (HCl) Hydrogen cyanide (hydrocyanic acid) Hydrogen fluoride Carbon monoxide Carbon dioxide (CO2) Nitrogen oxides (NOx) Sulphur oxides
Hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Chemical Stability	Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the technical-grade active ingredients, fluopyram and prothioconazole.

Acute oral toxicity	female rat: LD50: > 5,000 mg/kg
Acute dermal toxicity	male/female combined rat: LD50: > 5,050 mg/kg

Acute inhalation toxicity

male/female combined rat: LC50: > 2.22 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.

male/female combined rat: LC50: > 8.88 mg/l
Exposure time: 1 h
Determined in the form of liquid aerosol.
Extrapolated from the 4 hr LC50.

Skin irritation

rabbit: No skin irritation

Eye irritation

rabbit: No eye irritation

Sensitisation

guinea pig: Non-sensitizing.

Chronic toxicity

Fluopyram caused specific target organ toxicity in the liver in experimental animal studies.

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

Assessment Carcinogenicity

Fluopyram caused an increased incidence of tumours in the liver of rats at high dose levels.

Fluopyram caused an increased incidence of tumours in the thyroid of mice at high dose levels.

The tumours seen with Fluopyram were caused through a non-genotoxic mechanism, which is not relevant at low doses.

Prothioconazole was not carcinogenic in lifetime studies in rats and mice.

ACGIH
None.
NTP
None.
IARC
None.
OSHA
None.

Reproductive toxicity

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 general toxicity.

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 general toxicity.

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.

Prothioconazole caused developmental toxicity only at doses toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.

Mutagenicity

Fluopyram was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

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

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish

Rainbow trout (Oncorhynchus mykiss)
LC50: 1.83 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient prothioconazole.

Toxicity to aquatic plants

Pseudokirchneriella subcapitata
Growth rate
IC50: 2.18 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient prothioconazole.

Acute Toxicity to Aquatic Invertebrates

Water flea (Daphnia magna)
EC50: 1.3 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient prothioconazole.

Environmental precautions

Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Dispose in accordance with all local, state/provincial and federal regulations. Do not contaminate water, food, or feed by disposal.

Container Disposal

Do not re-use empty containers. 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.

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
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE SOLUTION)

IATA

UN-Number	**3082**
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (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.

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 264-1084

US Federal Regulations

TSCA list

1,2-Propanediol	57-55-6
Polyethylene-polypropylene copolymer	9003-11-6

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, RI

Canadian Regulations

Canadian Domestic Substance List

1,2-Propanediol	57-55-6
Polyethylene-polypropylene copolymer	9003-11-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 1 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

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

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

Reason for Revision: Reviewed and updated for general editorial purposes.

Revision Date: 02/05/2012