



NUFARM AGRICULTURE INC.

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name HORNET™ 432 F FOLIAR FUNGICIDE
PCP Registration No. 32500

Nufarm Agriculture Inc.
Suite 350, 2618 Hopewell Place NE
Calgary, Alberta T1Y 7J7
Canada

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-424-9300 (24 hours/day)
For Product Information call: 1-800-868-5444

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 suspension

Odor chalk-like

Appearance off-white

Exposure routes Eye contact, Ingestion, Inhalation, Skin Absorption

Immediate Effects

Eye May cause mild irritation to eyes. Avoid contact with eyes.

Skin May cause slight irritation. Harmful if absorbed through skin. Avoid contact with skin and clothing.

Ingestion Harmful if swallowed. Do not take internally.

Inhalation Harmful if inhaled. Avoid inhalation of vapour or mist.

Chronic or Delayed Long-Term This product or its components may have target organ effects.

Potential Environmental Effect Toxic to mammals. Toxic to fish and aquatic invertebrates.



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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Tebuconazole	107534-96-3	38.70
Glycerine	56-81-5	8.00

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	> 93.4 °C / 200.1 °F
Autoignition temperature	405 °C / 761 °F
Lower Flammability Limit	no data available
Upper Flammability Limit	no data available
Suitable extinguishing media	Carbon dioxide (CO ₂), Dry chemical, Foam, Water



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Fire Fighting Instructions

Keep out of smoke. Fight fire from upwind position. Evacuate personnel to safe areas. 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. Remove all sources of ignition.

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. Contaminated soil may have to be removed and disposed.

Additional advice

Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact vegetation.

SECTION 7. HANDLING AND STORAGE

Handling procedures

Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

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.

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

Train employees in safe use of the product. Follow all label instructions.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such



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instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

- Eye/Face Protection** Safety glasses with side-shields
- Hand protection** Chemical-resistant gloves made of waterproof material such as neoprene, butyl rubber, barrier laminate or nitrile rubber.
- 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

Tebuconazole	107534-96-3	OES BCS*	TWA	0.2 mg/m3
Glycerine	56-81-5	OEL (QUE)	TWA	10 mg/m3
		CAD AB OEL	TWA	10 mg/m3
		CAD BC OEL	TWA	10 mg/m3
		CAD BC OEL	TWA	3 mg/m3
		CAD ON OEL	TWAEV	10 mg/m3
		OEL (QUE)	TWA	10 mg/m3

*OES BCS: Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** off-white
- Physical State** liquid suspension
- Odor** chalk-like
- pH** ca. >= 7.5 (100 %)
- Vapor Pressure** no data available
- Vapor Density (Air = 1)** no data available
- Density** 1.12 g/cm³
- Evaporation rate** no data available
- Boiling Point** no data available
- Melting / Freezing Point** 0 °C / 32 °F



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Water solubility	miscible
Minimum Ignition Energy	no data available
Partition coefficient: n-octanol/water	no data available
Viscosity	800 - 1,200 mPa.s

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	Extremes of temperature and direct sunlight. freezing
Incompatibility	no data available
Hazardous Decomposition Products	Thermal decomposition can lead to release of: nitrogen oxides (NO _x) Carbon monoxide Hydrogen cyanide (hydrocyanic acid) Hydrogen chloride (HCl)
Chemical Stability	Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, tebuconazole.

Acute oral toxicity	male rat: LD50: 3,776 mg/kg female rat: LD50: 3,710 mg/kg
Acute dermal toxicity	male/female combined rat: LD50: > 2,011 mg/kg
Acute inhalation toxicity	male/female combined rat: LC50: > 2.5 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths male/female combined rat: LC50: > 10 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin irritation	rabbit: slight irritation



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Eye irritation	rabbit: Minimally irritating.
Sensitisation	guinea pig: Non-sensitizing.
Chronic toxicity	Tebuconazole caused liver, spleen, adrenal and/or eye effects at high doses in chronic studies in rats and dogs.

Assessment Carcinogenicity

Tebuconazole is classified by EPA as a Group C carcinogen (possible human carcinogen) based on liver tumors in mice and no evidence of carcinogenicity in rats. As the liver tumors were seen only at a dose exceeding a Maximum Tolerated Dose (MTD), no significant carcinogenic risk is posed for human exposure.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Reproductive toxicity	<p>REPRODUCTION: Tebuconazole is not considered a primary reproductive toxicant in rats. Reproductive effects (e.g., smaller litters) were observed at the highest concentration but were considered secondary to maternal toxicity.</p> <p>DEVELOPMENTAL TOXICITY: Tebuconazole is not considered a primary developmental toxicant in laboratory animals. Developmental effects were observed only at doses that caused maternal toxicity.</p>
Assessment neurotoxicity	Tebuconazole caused only transient neurobehavioral effects (e.g., decreased motor activity) in acute, subchronic and/or developmental neurotoxicity studies in rats.
Mutagenicity	Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to aquatic plants	Pseudokirchneriella subcapitata Growth rate EC50: 15.2 mg/l Exposure time: 96 h
Acute Toxicity to Aquatic Invertebrates	Water flea (Daphnia magna) EC50: 31.0 mg/l Exposure time: 48 h



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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

General Disposal Guidance

Do not contaminate water, food, or feed by disposal. 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.

Container Disposal

Triple rinse containers. Puncture container to avoid re-use. 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.

SECTION 14. TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

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

SECTION 15. REGULATORY INFORMATION

PCP Registration No. 32500

US Federal Regulations

TSCA list

Glycerine 56-81-5

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

Glycerine 56-81-5 IL, MN, RI



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Canadian Regulations

Canadian Domestic Substance List

Glycerine 56-81-5

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Glycerine 56-81-5

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Reactivity - 1 Others - none

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

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

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