



Material Safety Data Sheet

RESERVE™ FUNGICIDE

MSDS Number: 102000020820

MSDS Version 2.0

Revision Date: 04/15/2011

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SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name RESERVE™ FUNGICIDE
MSDS Number 102000020820
EPA Registration No. 432-1486
Product Use Fungicide

Bayer Environmental Science
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: 1-800-331-2867

SECTION 2. HAZARDS IDENTIFICATION

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

Emergency Overview Warning! Causes substantial but temporary eye injury. Do not get in eyes, on skin, or on clothing. Harmful if swallowed or absorbed through skin.

Physical State liquid suspension

Appearance green

Exposure routes Eye contact, Skin Absorption, Ingestion

Immediate Effects

Eye Causes substantial but temporary eye injury. May cause severe eye irritation. Do not get in eyes.

Skin Harmful if absorbed through skin. Do not get on skin or clothing.

Ingestion Harmful if swallowed. Do not take internally.

Inhalation Do not breathe vapours or spray mist.

Chronic or Delayed Long-Term

This product contains ingredients that are considered to be probable or suspected human carcinogens (see Section 11 - Chronic). This product or its components may have target organ effects.

Potential Environmental Effect

Toxic to aquatic invertebrates. Toxic to wildlife.



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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Triticonazole	131983-72-7	5.00
Chlorothalonil	1897-45-6	40.00
1,2-Propanediol	57-55-6	7.00
Polyethylene-polypropylene copolymer	9003-11-6	2.00

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	no data available
Lower Flammability Limit	no data available
Upper Flammability Limit	no data available



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- Suitable extinguishing media** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Fire Fighting Instructions** Avoid contact with spilled product or contaminated surfaces. Evacuate personnel to safe areas. 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** Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate 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** Follow all label instructions. Train employees in safe use of the product.



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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.

- 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

Triticonazole	131983-72-7	OES BCS*	TWA	4 mg/m3
Chlorothalonil	1897-45-6	OES BCS*	TWA	0.2 mg/m3
		TX ESL	ST ESL	15 ug/m3
		TX ESL	AN ESL	0.5 ug/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** green
- Physical State** liquid suspension
- pH** ca. 6.8 (10 %)
- Vapor Pressure** no data available
- Vapor Density (Air = 1)** no data available
- Density** 1.28 g/cm³
- Evaporation rate** no data available
- Boiling Point** no data available
- Melting / Freezing Point** no data available



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Water solubility	no data available
Minimum Ignition Energy	no data available
Partition coefficient: n-octanol/water	no data available
Viscosity	500 - 1,100 cps

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	no data available
Incompatibility	no data available
Hazardous Decomposition Products	no data available
Hazardous reactions	No hazardous reactions known.
Chemical Stability	Stable under recommended storage 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, chlorothalonil and triticonazole.

Acute oral toxicity	female rat: LD50: > 2,000 mg/kg
Acute dermal toxicity	rat: LD50: > 2,000 mg/kg
Acute inhalation toxicity	rat: LC50: > 2.0 mg/l Exposure time: 4.0 h Determined in the form of liquid aerosol. highest concentration tested Deaths: 1/5 males, 0/5 females
	rat: LC50: > 8.0 mg/l Exposure time: 1.0 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin irritation	rabbit: slight irritation
Eye irritation	rabbit: Severe eye irritation.
Sensitisation	guinea pig: Non-sensitizing.



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Chronic toxicity Chlorothalonil caused stomach and/or kidney effects in chronic studies in rats and dogs.

Triticonazole caused liver and/or adrenal effects in chronic studies in rats and dogs.

Assessment Carcinogenicity

Chlorothalonil has been classified by EPA as a "likely" human carcinogen based on an increased incidence of tumors (kidney and forestomach) in rats and mice.

Triticonazole was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

Chlorothalonil

1897-45-6

Overall evaluation: 2B

OSHA

None.

Reproductive toxicity

REPRODUCTION

Chlorothalonil was not a reproductive toxicant in two-generation studies in rats. Toxicity in the offspring occurred at doses producing systemic toxicity in parental animals.

Triticonazole was not a primary reproductive toxicant in a two-generation reproduction study in rats. Reproductive effects were observed only at high doses that caused systemic toxicity in parental animals.

DEVELOPMENTAL TOXICITY

Chlorothalonil was not a primary developmental toxicant in rats and rabbits based on the overall weight of evidence.

Triticonazole was not a primary developmental toxicant in rats and rabbits. Any developmental effects observed were considered secondary to maternal toxicity.

Assessment neurotoxicity

Chlorothalonil was not a neurotoxicant in a subchronic neurotoxicity screening study in rats.

Triticonazole was not a neurotoxicant in acute and subchronic neurotoxicity screening studies in rats.

Mutagenicity

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

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



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SECTION 12. ECOLOGICAL INFORMATION

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. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. 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 Pesticide wastes may be toxic. 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. Follow advice on product label and/or leaflet.

Container Disposal Do not re-use empty containers. Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. 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**
Description of the goods **ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLOROTHALONIL 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. (CHLOROTHALONIL SOLUTION)**



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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. 432-1486

US Federal Regulations

TSCA list

Chlorothalonil	1897-45-6
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

Chlorothalonil	1897-45-6	0.1%
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US States Regulatory Reporting

CA Prop65

This product contains a chemical known to the State of California to cause cancer.

Chlorothalonil	1897-45-6
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This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Chlorothalonil	1897-45-6	CA, NJ
1,2-Propanediol	57-55-6	MN, RI

Canadian Regulations

Canadian Domestic Substance List

Chlorothalonil	1897-45-6
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.

International Regulations



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European Inventory of Existing Commercial Substances (EINECS)

Chlorothalonil

1897-45-6

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Reactivity - 0 Others - none

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

Health - 2 Flammability - 1 Physical Hazard - 0 PPE -

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

Reason for Revision: Updated for general editorial purposes.

Revision Date: 04/15/2011

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