



Material Safety Data Sheet

SUMAGIC® Plant Growth Regulator

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, and storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SUMAGIC® Plant Growth Regulator
VC NUMBER(S): 1118
ITEM: 85100
SYNONYM(S): None
EPA REGISTRATION NUMBER: 59639-37

MANUFACTURER/DISTRIBUTOR
VALENT U.S.A. CORPORATION
P.O. Box 8025
1600 Riviera Avenue, Suite 200
Walnut Creek, CA 94596-8025

EMERGENCY TELEPHONE NUMBERS
HEALTH EMERGENCY OR SPILL (24 hr):
(800) 892-0099
TRANSPORTATION (24 hr.): CHEMTREC
(800) 424-9300 or (202) 483-7616

PRODUCT INFORMATION
PROFESSIONAL PRODUCTS: (800) 898-2536

The current MSDS is available through our website or by calling the product information numbers listed above. (www.valent.com)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight/Percent	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1-yl)-pent-1-ene-3-ol) * (83657-17-4)	0.055	None	None	See regulated exposure limits
Cyclohexanone (108-94-1)	3	Skin - potential significant contribution to overall exposure by the cutaneous route 50 ppm STEL 20 ppm TWA	200 mg/m ³ TWA 50 ppm TWA	See regulated exposure limits
Others ** (No CAS#)	96.945	None	None	None

* Active Ingredient

** Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling **(800) 892-0099** at any time.

Emergency Telephone: (800) 892-0099
REVISION NUMBER: 4

MSDS NO.: 0042
REVISION DATE: 02/18/2008

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- CAUTION**
- Causes eye irritation.
 - Avoid contact with eyes, skin and clothing.
 - Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure)

Signs and Symptoms of Systemic Effects: Signs of toxicity observed in animals at high dose levels of Uniconazole-P include decreased activity, poor coordination, irregular respiration and liver toxicity.

Acute Eye Contact: This product can cause brief and/or minor eye irritation. The expected adverse health effects resulting from an exposure may include redness and possible swelling.

Acute Skin Contact: This product can cause brief and/or minor irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling. This product is minimally toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

Acute Ingestion: This product is minimally toxic when ingested.

Acute Inhalation: This product is minimally toxic when inhaled.

Chronic Toxicity (including cancer): Uniconazole-P produced liver tumors in mice but is not considered a human carcinogen. Anemia and changes in the liver were the primary effects observed at high dose levels in animals.

Developmental Toxicity (birth defects): Uniconazole-P produced effects on the developing fetus only at doses that were also toxic to the pregnant female.

Reproductive Toxicity: Uniconazole-P Technical did not produce reproductive toxicity in animals.

Potentially Aggravated Medical Conditions: Individuals with preexisting diseases of the liver or kidney may have increased susceptibility to the toxicity of excessive exposures.

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. For Regulatory Information, refer to Section 15.

4. FIRST AID MEASURES

EMERGENCY NUMBER (800) 892-0099

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact **1-800-892-0099** for emergency medical treatment information.

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 poison control center or doctor for treatment advice.

SKIN CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION:

Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

INHALATION:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

NOTES TO PHYSICIAN:

None

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable

NFPA RATING:

Health:	1
Flammability:	1
Reactivity:	0
Special:	None

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

HAZARDOUS COMBUSTION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce: oxides of nitrogen Toxic chlorine compounds. Incomplete combustion can produce carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

VALENT EMERGENCY PHONE NUMBER: (800) 892-0099
CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300
OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION

Stop the source of the spill if safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water. For additional spill response information refer to the North American Emergency Response Guidebook.

FOR SPILLS ON LAND:

CONTAINMENT: Avoid runoff into storm sewers and ditches which lead to waterways. Contain spilled liquids with dry sorbents.

CLEANUP: Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

FOR SPILLS IN WATER:

CONTAINMENT: This material forms an emulsion in water. Stop or reduce contamination of any water. Isolate contaminated water.

CLEANUP: Clean up spill immediately. Absorb spill with inert material. Remove contaminated water for treatment or disposal.

7. HANDLING AND STORAGE

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Keep pesticide in original container. Do not store or transport near food or feed. Do not contaminate food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in a cool, dry place, out of direct sunlight.

Do not store at temperatures below 32°F. If the product is exposed to temperatures below 32°F, thaw at room temperature to 50°F or warmer and shake gently to unify the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

EYES: Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

RESPIRATORY PROTECTION: Use this material only in well ventilated areas. Unless ventilation is adequate to keep airborne concentrations below recommended exposure standards, approved respiratory protection should be worn.

SKIN PROTECTION: Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

EXPOSURE LIMITS - See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Colorless, clear to slightly hazy
ODOR:	Solvent odor
BOILING POINT:	No data available
DENSITY:	1.005 g/ml @ 20°C
VAPOR PRESSURE:	No data available
pH:	6 - 8
VISCOSITY:	No data available
CORROSION CHARACTERISTICS:	No data available
SOLUBILITY:	Emulsifiable in water.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures. Do not store at temperatures below 32° F.
INCOMPATIBILITY:	Not determined
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	Not expected to be explosive.
HAZARDOUS DECOMPOSITION PRODUCTS:	No data available

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Oral Toxicity LD ₅₀ (rats)	> 5000 mg/kg	EPA Tox Category	IV
Dermal Toxicity LD ₅₀ (rabbits)	> 5000 mg/kg	EPA Tox Category	IV
Inhalation Toxicity LC ₅₀ (rats)	> 5.9 mg/L	EPA Tox Category	IV
Eye Irritation (rabbits)	Slightly irritating	EPA Tox Category	III
Skin Irritation (rabbits)	Non-irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Not available

TOXICITY OF UNICONAZOLE-P TECHNICAL

SUBCHRONIC: Anemia, liver effects, thyroid changes and altered lipid metabolism were observed in rats treated with 1000 ppm or greater Uniconazole-P Technical in the diet for 3 months. The No-Observable-Effect-Level (NOEL) was 100 ppm (10 mg/kg/day). Anemia, liver effects, and clinical chemistry changes were observed in mice treated with 1000 ppm or greater Uniconazole-P Technical in the diet for 5 weeks. The No-Observable-Effect-Level (NOEL) was 300 ppm. Liver effects, and clinical chemistry changes were observed in dogs treated with 20mg/kg/day or greater Uniconazole-P Technical for 3 months. The No-Observable-Effect-Level (NOEL) was 5mg/kg/day. Skin irritation, and liver changes were observed at 25 mg/kg/day or higher in a 28-day dermal study in rats. The NOEL was 5 mg/kg/day.

CHRONIC/CARCINOGENICITY: A cancer bioassay in mice revealed an increased incidence of liver tumors among males exposed to 210 mg/kg/day Uniconazole-P via the diet. There was no increase in tumors of any type in males exposed to 1-25 mg/kg/day or in any of the treated female groups (1.5-240 mg/kg/day). The biological significance of this finding is unclear because the tumors arose late in the study and fewer untreated animals were still alive at that time. Uniconazole-P was not carcinogenic in rats exposed to 0.4-40 mg/kg/day in the diet for a lifetime. The only toxic effects observed in rats were decreased body weight gains and changes in the blood chemistry and liver cell. Repeated oral or dermal exposure to Uniconazole-P resulted in non-specific depression of the central nervous system and changes in the liver, kidney, and blood systems in rats, mice, and dogs at dose levels greater than 15, 140, and 20 mg/kg/day for the three species, respectively. The most prominent effects were produced in the liver. A chronic toxicity study in dogs revealed blood chemistry changes, increased liver, kidney, and adrenal weights, and decreased thymus weights at levels of 20-200 mg/kg/day. The only cellular effect observed was liver cell enlargement.

DEVELOPMENTAL TOXICITY: In teratology studies, minor skeletal variations were observed in the offspring of rats exposed to 25 mg/kg/day Uniconazole-P, a dose that was also toxic to the dam. The NOEL for this study was 5 mg/kg/day. No evidence of developmental toxicity or teratogenicity was seen in rabbits.

REPRODUCTION: Uniconazole-P did not produce malformations or adverse reproductive effects in a two-generation rat reproduction study.

MUTAGENICITY: Genetic toxicity tests in cultured mammalian cells and in mice indicate that Uniconazole-P may damage genetic material, but only at dose levels that are severely toxic to the test organisms. Uniconazole-P was not mutagenic in bacteria.

TOXICITY OF OTHER INGREDIENTS:

Overexposure to cyclohexanone may cause cataracts, liver and kidney damage and is reported to effect the fetus in animal studies.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 3. For information regarding regulations pertaining to this product, refer to Section 15.

12. ECOLOGICAL INFORMATION

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AVIAN TOXICITY: Uniconazole-P Technical is toxic to avian species. The following results were obtained from studies with technical:
 Oral LD₅₀ bobwhite quail: 1461 mg/kg;
 Oral LD₅₀ mallard duck: >2315 mg/kg;
 Dietary LC₅₀ bobwhite quail: >5782 ppm;
 Dietary LC₅₀ mallard duck: 3345 ppm.
 One generation reproduction, bobwhite quail: NOEC = 320 ppm
 One generation reproduction, mallard duck: NOEC = 80 ppm, treatment related effects observed at 320 ppm

AQUATIC ORGANISM TOXICITY: Uniconazole-P Technical is toxic to freshwater fish; toxic to freshwater invertebrates; toxic to estuarine/marine fish and toxic estuarine/marine invertebrates, based on the following tests:
 96-hour LC₅₀ rainbow trout: 14.8 mg/L;
 96-hour LC₅₀ bluegill sunfish: 8.2 mg/L;
 96-hour LC₅₀ carp: 7.5 mg/L
 48-hour LC₅₀ Daphnia magna: >10 mg/L.

OTHER NON-TARGET ORGANISM TOXICITY: Uniconazole-P Technical is not toxic to bees. No mortality was produced in an acute contact LC₅₀ in bees at 20 µg/bee.

13. DISPOSAL CONSIDERATIONS

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

DISPOSAL METHODS: Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

14. TRANSPORT INFORMATION

DOT (ground) SHIPPING NAME: Plant Growth Regulator, non-regulated
DOT TECHNICAL SHIPPING NAME: Uniconazole-P 0.06% Solution
DOT REPORTABLE QUANTITY (RQ): 20,000 gallons (cyclohexanone RQ=5,000 lbs)
UN/NA NUMBER: Not applicable
HAZARD CLASS: Not applicable

15. REGULATORY INFORMATION

PESTICIDE REGULATIONS: All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

U.S. FEDERAL REGULATIONS:

Chemical Name	RCRA - U Series Wastes	Clean Water Act - Hazardous Substances	Clean Water Act Section 307
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	None	Not listed	Not listed
Cyclohexanone (108-94-1)	Listed	Not listed	Not listed

CWA Section 311: No data

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	Not listed	Not listed	None
Cyclohexanone (108-94-1)	Not listed	Not listed	5000 lb (2270 kg)

Product Reportable Quantity (RQ): 20,000 gallons

SARA (311, 312):

Immediate Health:	Yes
Chronic Health:	Yes
Fire:	Yes
Sudden Pressure:	No
Reactivity:	No

Chemical Name	IARC - Group 1 (carcinogenic to humans)	IARC - Group 2A (Probably carcinogenic)	IARC - Group 2B (Possibly carcinogenic)	NTP Carcinogen List
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	No	No	No	Not listed
Cyclohexanone (108-94-1)	No	No	No	Not listed

STATE REGULATIONS:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 2 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above.

Chemical Name	California Proposition 65	California - Directors List of Hazardous Substances
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	Not listed	Not listed
Cyclohexanone (108-94-1)	Not listed	Listed

Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	Not listed	Not listed	Listed
Cyclohexanone (108-94-1)	Not listed	Listed	Listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Uniconazole-P ((E)-(+)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1yl)-pent-1-ene-3-ol) * (83657-17-4)	Not listed	Not listed	Not listed
Cyclohexanone (108-94-1)	Listed	Listed	Listed

California Proposition 65:

WARNING: This product contains chemicals known to the State of California to cause cancer and to cause reproductive toxicity. (Trace amounts of ethylene oxide and 1,4 dioxane).

CANADIAN REGULATIONS:

WHMIS Hazard Class:

D2B Toxic materials

This product is not listed on Canada's DSL/NDSL List.
This product is not listed on Canada's Ingredient Disclosure List.

A component of this product (CAS# 108-94-1) is listed on Canada's DSL/NDSL List
A component of this product (CAS# 108-94-1) has a WHMIS classification of B3, D2B.
A component of this product (CAS# 9005-64-5) is listed on Canada's DSL/NDSL List.

For information regarding potential adverse health effects from exposure to this product, refer to Sections 3 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: Correct the regulatory section and put in a slightly new format.
MSDS NO.: 0042
EPA REGISTRATION NUMBER: 59639-37
REVISION NUMBER: 4
REVISION DATE: 02/18/2008
SUPERCEDES DATE: April 30, 2004
RESPONSIBLE PERSON(S): Valent U.S.A. Corporation, Corporate EH&S, (925) 256-2803

THE INFORMATION IN THIS MSDS IS BASED ON DATA AVAILABLE TO US AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT VALENT U.S.A . CORPORATON TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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