



Material Safety Data Sheet

SUMAGIC® Plant Growth Regulator

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SUMAGIC® Plant Growth Regulator
EPA REGISTRATION NUMBER: 59639-37
PRODUCT CODE: 85100
SYNONYM(S): None
Sumagic is a registered trademark of Sumitomo Chemical Co., Ltd.

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
AGRICULTURAL PRODUCTS: (800) 682-5368

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

2. 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): None known

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.

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

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.

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 Ecotox/Environmental Information, refer to Section 12. For Regulatory Information, refer to Section 15.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight/ Percent	Purpose
Uniconazole-P: (E)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1H-1,2,4-triazol-1-yl)pent-1-en-3-ol	83657-17-4	0.055	Active Ingredient
Cyclohexanone	108-94-1	3	Solvent
Others	No CAS#	96.945	Other Ingredients

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 identities are 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.

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 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 DECOMPOSITION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce: Oxides of nitrogen and 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.

UN/NA NUMBER: Not applicable **EMERGENCY RESPONSE GUIDEBOOK NO.:** Not applicable

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.

HANDLING:

Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Do not put into food or drink containers. Do not dilute in food or drink containers.

STORAGE:

Keep pesticide in original container only. Store in a cool, dry place. Do not contaminate water, food or feed by storage or disposal. Do not store near heat or open flame. Store in a cool dry area away from children. Do not transport or store below 32°F. This product may freeze. If freezing should occur, thaw and shake gently to unify the product. Do not store diluted spray.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

INFORMATION FOR END USERS

EYES & FACE: 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.

SKIN & HAND PROTECTION: Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including long pants, long-sleeved shirt and shoes plus socks and chemical-resistant gloves. Remove contaminated clothing.

EXPOSURE LIMITS

Chemical Name	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Uniconazole-P: (E)-(S)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1H-1,2,4-triazol-1-yl)pent-1-en-3-ol	None	None	None
Cyclohexanone	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	None
Others	Not known	Not known	Not known

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM:

Liquid at 23° C

COLOR:

Colorless, clear to slightly hazy

ODOR:

Solvent odor

FLASH POINT:

Not applicable

BOILING POINT:

No data available

DENSITY:

1.005 g/ml @ 20°C

VAPOR PRESSURE:

No data available

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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 (0° C).
INCOMPATIBILITY:	Not determined
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	Not expected to be explosive
HAZARDOUS DECOMPOSITION PRODUCTS:	Normal combustion forms carbon dioxide, water vapor and may produce: Oxides of nitrogen and toxic chlorine compounds. Incomplete combustion can produce carbon monoxide.

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

CARCINOGEN CLASSIFICATION

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-(1H-1,2,4-triazol-1-yl)pent-1-en-3-ol	No	No	No	Not listed
Cyclohexanone	No	No	No	Not listed
Others	Not known	Not Known	Not known	Not known

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 2. For information regarding regulations pertaining to this product, refer to Section 15.

12. ECOLOGICAL INFORMATION

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.

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

OTHER ENVIRONMENTAL INFORMATION:

Do not apply directly to water, to areas where surface water is present or to intertidal areas below mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters. See Directions for Use on product label for additional precautions and restrictions.

13. DISPOSAL CONSIDERATIONS

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

PRODUCT DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Open dumping is prohibited.

CONTAINER DISPOSAL:**CONTAINERS FIVE GALLONS AND UNDER:**

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure 2 more times.

CONTAINERS OVER FIVE GALLONS:/50 lbs.

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into mix tank. Fill the container 1/4 full with solvent used to formulate the end-product. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

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

UN/NA NUMBER:	Not applicable
DOT (ground) SHIPPING NAME:	Plant Growth Regulator, non-regulated
TECHNICAL NAME (hazardous material):	Not applicable
HAZARD CLASS:	Not applicable
PACKING GROUP:	Not applicable
DOT REPORTABLE QUANTITY (RQ):	20,000 gallons (cyclohexanone RQ=5,000 lbs)
REMARKS:	None
EXEMPTION REQUIREMENT:	None
EMERGENCY RESPONSE GUIDEBOOK NO.:	Not applicable
MARINE POLLUTANT:	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:

Emergency Telephone: (800) 892-0099
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Ingredients in this product are reviewed against an inclusive list of federal regulations. Therefore, the user should consult appropriate authorities. The federal regulations reviewed include: Clean Water Act, SARA, CERCLA, RCRA, DOT, TSCA and OSHA. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

Cyclohexanone

TSCA Inventory List - *

CERCLA Reportable Quantity (RQ): 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

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 8 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

Cyclohexanone

California - Directors List of Hazardous Substances Present

MA Right To Know Listed

NJ Right To Know Listed

PA Right To Know Listed

RI Right To Know Listed

MN Hazardous Substance Listed

Others

California Proposition 65 Not Listed

For information regarding potential adverse health effects from exposure to this product, refer to Sections 2 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: Corrected the active ingredient and technical names. Revised entire MSDS with updated information.

SDS NO.: 0042

EPA REGISTRATION NUMBER: 59639-37

REVISION NUMBER: 6

REVISION DATE: 08/28/2012

SUPERCEDES DATE: May 18, 2010

RESPONSIBLE PERSON(S): Valent U.S.A. Corporation, Corporate EH&S, (925) 256-2803

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, 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.

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. Corporation to confirm if you have the most current MSDS.

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