



Material Safety Data Sheet

Arena® 0.5 G

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: Arena® 0.5 G
VC NUMBER(S): None
ITEM: 61420
SYNONYM(S): V-10170 0.5% G
EPA REGISTRATION NUMBER: 66330-53-59639

MANUFACTURER /DISTRIBUTOR:
VALENT USA 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
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 |
|--|----------------|-----------------------|----------------------|--------------------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * | 0.5 | None | None | See regulated exposure limits |
| Others ** (Various CAS#s) | 99.5 | None | None | See regulated exposure limits |

* 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: 2

MSDS NO.: 0277
REVISION DATE: 06/07/2007

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

- Causes moderate eye irritation.
- Harmful if swallowed, inhaled or absorbed through skin.
- Avoid contact with eyes, skin and clothing.
- Avoid breathing dust or spray mist.
- Toxic to aquatic invertebrates and bees.
- Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure)

Signs and Symptoms of Systemic Effects: No Data Available

Acute Eye Contact: This product may cause slight to moderate eye irritation. Adverse health effects resulting from an exposure may include redness, swelling and pain which could last for an extended period of time.

Acute Skin Contact: This product may be minimally toxic when absorbed through the skin. This product is expected to cause brief and/or minor irritation. This product is not expected to cause allergic skin reactions.

Acute Ingestion: This product is minimally toxic when ingested.

Acute Inhalation: This product is expected to be minimally toxic when inhaled. Exposure to high concentrations in the air may result in respiratory irritation. Signs and symptoms may include, but not be limited to, nasal discharge, sore throat, coughing and difficulty in breathing.

Chronic Toxicity (including cancer): The active ingredient did not cause cancer in long-term animal studies.

Developmental Toxicity (birth defects): Not considered a developmental hazard.

Reproductive Toxicity: Not considered a reproductive hazard.

Potentially Aggravated Medical Conditions: None known

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
AUTOIGNITION: > 150° C (the technical material decomposes at 150° C)
 Self-Ignition temperature: 208° C
EXTINGUISHING MEDIA: Dry chemical powder, carbon dioxide, foam. Unsuitable extinguishing media - none known.
FLAMMABLE LIMITS IN AIR - LOWER (%): Not applicable
FLAMMABLE LIMITS IN AIR - UPPER (%): Not applicable
NFPA RATING:
 Health: 1
 Flammability: 0
 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.

FIRE FIGHTING INSTRUCTIONS: Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse. Read the entire document.

This material is combustible.

HAZARDOUS COMBUSTION PRODUCTS: Fumes from combustion may contain toxic compounds such as: Hydrogen chloride. Oxides of sulfur. Carbon monoxide. Oxides of nitrogen.

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: Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water.

CLEANUP: Clean up spill immediately. Vacuum or sweep up material and 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 will disperse or dissolve in water. Stop the source of the release. Contain and isolate to prevent further release into soil, surface water and ground 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.

Keep container tightly closed. Keep container in a cool well ventilated area. Stable at normal temperatures and storage conditions in closed original package.

Use only in well ventilated area. Avoid contact with skin and eyes. Do not breath dust.

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. If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended. In case of dust formation use a dust mask.

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

ENGINEERING CONTROLS: Use in a well ventilated area.

EXPOSURE LIMITS - See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--------------------------------|
| PHYSICAL STATE: | Granule |
| COLOR: | Off-white |
| ODOR: | No data available |
| MELTING POINT: | 176-178° C |
| BOILING POINT: | Not applicable |
| BULK DENSITY: | 0.726 g/mL |
| VAPOR PRESSURE: | 5.7x10 ⁻⁸ Pa @20° C |
| DISSOCIATION CONSTANT: | pKa 11.09 (20° C, technical) |
| pH: | 4.06 |
| CORROSION CHARACTERISTICS: | No data available |
| OCTANOL/WATER PARTITION COEFFICIENT: | 1.05 @ 24° C |
| SOLUBILITY: | Dispersible in water |

10. STABILITY AND REACTIVITY

| | |
|--|--|
| CHEMICAL STABILITY: | Stable at 25°C for 4 months (ph 4 - 9). Stable at 40°C for 3 months. (Based on V-10170 50 WDG) |
| INCOMPATIBILITY: | None known |
| OXIDATION/REDUCTION PROPERTIES: | No data available |
| EXPLODABILITY: | Not explosive. |
| HAZARDOUS DECOMPOSITION PRODUCTS: | May emit toxic gases and irritating fumes under fire conditions. (See Section 5.) |
| MATERIALS TO AVOID: | None known |

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

| | | | |
|---|--------------------------|------------------|----------------|
| Oral Toxicity LD ₅₀ (rats) | > 5000 mg/kg | EPA Tox Category | IV |
| Dermal Toxicity LD ₅₀ (rats) | > 5000 mg/kg | EPA Tox Category | IV |
| Inhalation Toxicity LC ₅₀ (rats) | > 6.141 mg/L (technical) | EPA Tox Category | IV |
| Eye Irritation (rabbits) | Moderately irritating | EPA Tox Category | III |
| Skin Irritation (rabbits) | Non-irritating | EPA Tox Category | IV |
| Skin Sensitization (guinea pigs) | Non-sensitizer | EPA Tox Category | Not applicable |

TOXICITY OF CLOTHIANIDIN TECHNICAL

SUBCHRONIC: The NOEL in a 3-month rat feeding study with Clothianidin Technical was 27.9 mg/kg/day (male) and 34.0 mg/kg/day (female) The NOEL in a 90-day dog feeding study was 19.3 mg/kg/day (male) and 21.2 mg/kg/day (female).

CHRONIC/CARCINOGENICITY: The Clothianidin NOEL for a 2-year rat study was 9.7 mg/kg/day (female); for a 18-month mouse study was 47.2 mg/kg/day (male) and for a 12-month dog study was 7.8 mg/kg/day (male). The principal target organs were the glandular stomach, kidney, ovary, and liver. No oncogenic effects were observed in the 2-year rat or 18-month mouse feeding studies.

DEVELOPMENTAL TOXICITY: No teratogenic effects on rats or rabbits were observed. Transient developmental effects (delayed ossification) were observed in rabbits at maternally toxic doses (100 mg/kg/d). The technical material is fetotoxic in animal studies at maternally toxic doses.

REPRODUCTION: No reproductive effects were observed in rats at the highest dose tested (2500 ppm).

MUTAGENICITY: *In vivo* tests have demonstrated that the technical material is not mutagenic. Some *in-vitro* tests were positive for mutagenicity. The observed effects *in-vitro* were due to cytotoxic effects. The weight-of-evidence from the *in vivo* whole animal tests suggest that this product does not present a mutagenic hazard.

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

| | |
|------------------------|---|
| AVIAN TOXICITY: | The following results were obtained from studies with Clothianidin Technical: LD ₅₀ Japanese quail: = 430 mg/kg; LD ₅₀ Northern bobwhite: > 2000 mg/kg LC ₅₀ Northern bobwhite: > 5200 ppm; LC ₅₀ Mallard duck: > 5200 ppm. |
|------------------------|---|

AQUATIC ORGANISM TOXICITY: This product is toxic to aquatic invertebrates. The following are results from testing of Clothianidin Technical:
 Bluegill 96 hr. LC₅₀: > 120 mg/L
 Rainbow trout 96 hr. LC₅₀: > 100 mg/L
 Sheepshead minnow 96 hr. LC₅₀: > 100 mg/L
 Water flea 48 hr. EC₅₀: 40 mg/L
 Mysid 96 hr. LC₅₀: = 0.053 mg/L
 Algae 72 hr. ErC₅₀: > 120 mg/L
 Partition coefficient: log Pow=0.7 @ 25 C; Degradation in soil: DT₅₀: >140 days

OTHER NON-TARGET ORGANISM TOXICITY: Honeybee 48-hour oral LD₅₀: = 0.044mg/bee; Honeybee 48-hour contact LD₅₀: = 0.004 mg/bee; Earthworm 7-day LC₅₀: = 19 mg/kg dry soil

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: | Pesticide, Solid, Non-regulated |
| DOT REPORTABLE QUANTITY (RQ): | Not applicable |
| UN/NA NUMBER: | Not applicable |
| HAZARD CLASS: | Not applicable |
| PACKING GROUP: | Not applicable |
| EXEMPTION REQUIREMENT: | None |

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.

OTHER U.S. FEDERAL REGULATIONS:

| Chemical Name | RCRA - U Series Wastes | Clean Water Act - Hazardous Substances | Clean Water Act Section 307 |
|--|------------------------|--|-----------------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | None | Not listed | Not listed |

CWA Section 311: No data available

| Chemical Name | SARA 313 Chemicals | SARA Section 302 | CERCLA Reportable Quantity (RQ): |
|--|--------------------|------------------|----------------------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | Not listed | Not listed | None |

SARA (311, 312):

| | |
|-------------------|-----|
| Immediate Health: | Yes |
| Chronic Health: | No |
| Fire: | No |

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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 |
|--|--|--|--|---------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | 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 |
|--|---------------------------|---|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | Not listed | Not listed |

| Chemical Name | MI - Critical Materials List | MA Right To Know | NJ Right To Know |
|--|------------------------------|------------------|------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | Not listed | Not listed | Not listed |

| Chemical Name | PA Right To Know | RI Right To Know | MN Hazardous Substance |
|--|------------------|------------------|------------------------|
| Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine] * (210880-92-5) | Not listed | Not listed | Not listed |

California Proposition 65: No data available

CANADIAN REGULATIONS:

WHMIS Hazard Class: Not determined

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 product name. Change the Manufacturer's address. Revised entire MSDS with updated information.

MSDS NO.: 0277

EPA REGISTRATION NUMBER: 66330-53-59639

REVISION NUMBER: 2

REVISION DATE: 06/07/2007

SUPERCEDES DATE: 04/15/2005

RESPONSIBLE PERSON(S): Valent USA Corporation, Corporate EH&S, (925) 256-2700

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 USA CORPORATON TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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