



Material Safety Data Sheet

Safari® 2 G Insecticide

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: Safari® 2 G Insecticide
VC NUMBER(S): 1630
ITEM: 69714057
SYNONYM(S): None
EPA REGISTRATION NUMBER: 59639-149

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
Dinotefuran, N-methyl-N'-nitro-N''-((tetrahydro-3-furanyl)methyl)guanidine * (165252-70-0)	2	None	None	None
Hydrated amorphous silica (7631-86-9)	< 1	10 mg/m ³ (total amorphous dust); 3 mg/m ³ (respirable nuisance particulate)	6 mg/m ³ (total dust)	See regulated exposure limits
Wood or particle board flour (9004-34-6)	Unknown	10 mg/m ³ TWA	15 mg/m ³ TWA 5 mg/m ³ TWA	See regulated exposure limits
Others ** (No CAS#)	98	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: 3

MSDS NO.: 0339
REVISION DATE: 02/15/2008

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Note: • No signal word required.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure)

Signs and Symptoms of Systemic Effects: No significant signs of systemic toxicity were observed in animals exposed to very high oral, dermal or inhalation dosages of Dinotefuran Technical. The toxicity of this formulation has not been fully assessed. The information provided is based on a similar product.

Acute Eye Contact: This product is expected to cause minimal or no eye irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor 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 slightly toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

Acute Ingestion: This product is slightly toxic when ingested.

Acute Inhalation: This product is minimally toxic when inhaled.

Chronic Toxicity (including cancer): No specific target organ(s) could be identified in chronic studies conducted with Dinotefuran in rats, mice and dogs, nor did it produce tumors in rats or mice. This product contains an unknown quantity of crystalline silica, which is listed by IARC as a carcinogen and may contain wood dust, which is listed by IARC as a carcinogen and by NTP as a known carcinogen.

Developmental Toxicity (birth defects): No developmental toxicity was produced in animals exposed to Dinotefuran Technical, even at doses that were toxic to the pregnant animal.

Reproductive Toxicity: Dinotefuran Technical was tested in a two-generation rat reproduction study. Reduced preweaning weight gain was observed only at a dose that also produced systemic maternal toxicity.

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:	350°C (Dinotefuran)
NFPA RATING:	
Health:	1
Flammability:	3
Reactivity:	1
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 not expected to burn or explode in normal conditions, but will burn violently if involved in a fire. Dinotefuran becomes self-reactive in high temperatures. Exposure to heat may promote violent decomposition.

HAZARDOUS COMBUSTION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce: 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: Remove all sources of ignition. Ventilate area of leak or spill. Clean-up personnel may require protection from inhalation of dust. Avoid runoff into storm sewers or other bodies of water.

CLEANUP: Clean up spill immediately in a manner that does not disperse dust into the air 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 away from all possible sources of ignition (sparks or flame). Avoid high temperatures exceeding 150°C. Keep container closed. Use only with adequate ventilation. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring the material. Use explosion-proof electrical equipment. Take precautionary measures against static discharges.

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.

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.

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:	Granule
COLOR:	Brown
ODOR:	Slight
MELTING POINT:	107.5°C (Dinotefuran)
BOILING POINT:	Decomposed 208°C (Dinotefuran)
BULK DENSITY:	796 g/L (49.7 lb/ft ³)
pH:	6.6 (1% dilution)
SOLUBILITY:	Soluble in water.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures.
INCOMPATIBILITY:	Strong oxidizers, heat and sources of ignition.
OXIDATION/REDUCTION PROPERTIES:	Not an oxidizing or reducing agent.
EXPLODABILITY:	Minimum Explosive Concentration: 110 mg/L Maximum Oxygen Concentration: 11%
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon oxides, nitrogen oxides sulfur oxides, crystalline silica

11. TOXICOLOGICAL INFORMATION**ACUTE TOXICITY:**

There is no toxicology information available for this specific formulation. The following information is for a similar product.

Oral Toxicity LD ₅₀ (rats)	> 2000 mg/kg	EPA Tox Category	IV
Dermal Toxicity LD ₅₀ (rabbits)	> 2000 mg/kg	EPA Tox Category	IV
Inhalation Toxicity LC ₅₀ (rats)	> 2.94 mg/L (4 hr)	EPA Tox Category	IV
Eye Irritation (rabbits)	Brief and/or minor irritation	EPA Tox Category	IV
Skin Irritation (rabbits)	Brief and/or minor irritation	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Negative

TOXICITY OF DINOTEFURAN TECHNICAL

SUBCHRONIC: Dinotefuran technical was tested in 13-week dietary toxicity studies in rats, mice and dogs. In the rat study, a NOEL of 500 ppm was established, based on reduced body weight gain in females and adrenal cortical vacuolation in males and a NOAEL of 5,000 ppm based on marked growth retardation at 25,000 ppm (adrenal cortical vacuolation not adverse). A NOEL of 25,000 ppm was established in the mouse study based on reduced body weight gain at 50,000 ppm. In the dog 13-week dietary study, a NOEL of 8,000 ppm was established based on reduced body weight gain. No target organs were identified in subchronic inhalation or dermal toxicity studies in rats.

CHRONIC/CARCINOGENICITY: Dinotefuran technical was tested in lifetime studies with rats and mice and a one-year study with dogs. In common with the subchronic studies in these species, no specific target organs could be identified. In the 78-week mouse study a NOAEL of 2500 ppm was established, based on decreased weight gain and a decrease in circulating platelet counts. In the 104-week rat study a NOAEL of 2000 ppm was established, based on a decrease in weight gain in females. There were no treatment-related effects in rats or mice on survival or the nature and incidence of neoplastic and adverse non-neoplastic histomorphological findings in either species at any dose level. In the 52-week dog study a NOAEL of 16000 ppm was established based on decreased weight gain in both sexes and decreased food consumption in females.

NEUROTOXICITY: Dinotefuran did not produce any functional or histomorphological evidence of neurotoxicity in acute (gavage) and 13-week (dietary) neurotoxicity studies in rats. The NOEL for neurotoxicity in the acute study was 1,500 mg/kg, the highest dose level administered. The NOEL for neurotoxicity in the 13-week dietary study was 50,000 ppm. The NOEL for all effects in this study was 5,000 ppm based on reduced body weight gain and food consumption.

DEVELOPMENTAL TOXICITY: In a developmental toxicity study of Dinotefuran technical in rats the maternal NOAEL was 300 mg/kg/day based on reduced weight gain, food consumption and water intake at 1000 mg/kg/day. Dinotefuran technical did not produce developmental effects in rats at doses up to 1000 mg/kg/day (the highest doses tested). In a study with rabbits the maternal NOAEL was 52 mg/kg/day based on reduced weight gain, food consumption and water intake and clinical signs noted at 300 mg/kg/day and pathology findings in the liver and stomach at 125 mg/kg/day and higher. The developmental NOEL was 300 mg/kg/day.

REPRODUCTION: Dinotefuran technical was tested in a two-generation rat reproduction study at doses of 0, 300, 1000, 3000 and 10000 ppm. The NOAEL for systemic toxicity in parental animals was 3000 ppm based on decreased body weight gain and food consumption and decreased spleen and thyroid weights at the highest dose level evaluated (10000 ppm). The NOAEL for reproductive effects was 10000 ppm. The NOAEL for effects on the offspring was 3000 ppm based on reduced preweaning weight gain at 10000 ppm.

MUTAGENICITY: Dinotefuran technical was negative in the following in vitro assays: Ames Assay, mouse lymphoma (L5178Y), mammalian cytogenetics (CHL/IU) or DNA Repair. Dinotefuran technical was negative in the following in vivo assays: mouse micronucleus. Overall, Dinotefuran technical does not present a genetic 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: Dinotefuran Technical is practically non-toxic to moderately toxic to avian species. Test results include:
Oral LD₅₀ quail: greater than 2000 mg/kg;
Dietary LC₅₀ Mallard duck: greater than 997.9 ppm;
Dietary LC₅₀ quail: greater than 1301 ppm;
Reproduction quail: NOEL = 5000 ppm;
Reproduction Mallard duck: NOEL = 2000 ppm

AQUATIC ORGANISM TOXICITY: Dinotefuran Technical is practically nontoxic to fish and practically nontoxic to highly toxic to aquatic invertebrate species. Test results include:
LC₅₀ (96 hr) Bluegill Sunfish: greater than 100 mg/l;
LC₅₀ (96 hr) Rainbow Trout: greater than 100 mg/l;
LC₅₀ (96 hr) Common Carp: greater than 100 mg/l
LC₅₀ (96 hr) Sheepshead Minnow: greater than 109 mg/l
NOEC (early life stage) Rainbow Trout: greater than 10 mg/l;
EC₅₀ (48 hr) Daphnia magna: greater than 1000 mg/l;
NOEC (lifecycle) Daphnia magna: greater than 10 mg/l;
LC₅₀ (96 hr) Mysid Shrimp: 0.79 mg/l;
EC₅₀ (96 hr) Oyster Shell Deposition: greater than 141 mg/l.

OTHER NON-TARGET ORGANISM TOXICITY: Dinotefuran Technical is highly toxic to bees. The acute oral and contact LD₅₀ in bees were 0.056 µg/bee and 0.022 ug/bee, respectively.

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:	Pesticides, dry, non-regulated
DOT TECHNICAL SHIPPING NAME:	Dinotefuran 2% Solid
DOT REPORTABLE QUANTITY (RQ):	Not applicable
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
Dinotefuran, N-methyl-N'-nitro-N''-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	None	Not listed	Not listed
Quartz (crystalline silica) (14808-60-7)	None	Not listed	Not listed
Hydrated amorphous silica (7631-86-9)	None	Not listed	Not listed
Wood or particle board flour (9004-34-6)	None	Not listed	Not listed
Wood dust (RR-00514-1)	None	Not listed	Not listed

CWA Section 311: No data

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Dinotefuran, N-methyl-N'-nitro-N''-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	Not listed	Not listed	None
Quartz (crystalline silica) (14808-60-7)	Not listed	Not listed	None
Hydrated amorphous silica (7631-86-9)	Not listed	Not listed	None
Wood or particle board flour (9004-34-6)	Not listed	Not listed	None
Wood dust (RR-00514-1)	Not listed	Not listed	None

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
Dinotefuran, N-methyl-N'-nitro-N''-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	No	No	No	Not listed
Quartz (crystalline silica) (14808-60-7)	Yes	No	No	Known Carcinogen
Hydrated amorphous silica (7631-86-9)	No	No	No	Not listed
Wood or particle board flour (9004-34-6)	No	No	No	Not listed
Wood dust (RR-00514-1)	Yes	No	No	Known Carcinogen

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
Dinotefuran, N-methyl-N'-nitro-N''-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	Not listed	Not listed
Quartz (crystalline silica) (14808-60-7)	carcinogen, initial date 10/1/88 (airborne particles of respirable size)	Not listed
Hydrated amorphous silica (7631-86-9)	Not listed	Listed
Wood or particle board flour (9004-34-6)	Not listed	Not listed
Wood dust (RR-00514-1)	Not listed	Not listed

Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Dinotefuran, N-methyl-N'-nitro-N'-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	Not listed	Not listed	Listed
Quartz (crystalline silica) (14808-60-7)	Not listed	Listed	Listed
Hydrated amorphous silica (7631-86-9)	Not listed	Listed	Listed
Wood or particle board flour (9004-34-6)	Not listed	Listed	Not listed
Wood dust (RR-00514-1)	Not listed	Not listed	Not listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Dinotefuran, N-methyl-N'-nitro-N'-[(tetrahydro-3-furanyl)methyl]guanidine * (165252-70-0)	Not listed	Not listed	Not listed
Quartz (crystalline silica) (14808-60-7)	Listed	Listed	Listed
Hydrated amorphous silica (7631-86-9)	Listed	Not listed	Listed
Wood or particle board flour (9004-34-6)	Listed	Listed	Listed
Wood dust (RR-00514-1)	Not listed	Listed	Listed

California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer.

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: Updated Valent Logo. Slight formulation change, edits throughout.
MSDS NO.: 0339
EPA REGISTRATION NUMBER: 59639-149
REVISION NUMBER: 3
REVISION DATE: 02/15/2008
SUPERCEDES DATE: October 18, 2007
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. CORPORATION TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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