

Safety Data Sheet

BOLERO® UltraMax

1. IDENTIFICATION: CHEMICAL PRODUCT AND COMPANY

PRODUCT NAME:BOLERO® UltraMaxEPA REGISTRATION NUMBER:59639-112VC NUMBER(S):1403SYNONYM(S):NonePRODUCT DESCRIPTION:Rice herbicide

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

Category 4

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

For EPA FIFRA-specific information see Section 15

Classification

Acute toxicity - Inhalation (Dusts/Mists)

Label elements

EMERGENCY OVERVIEW

WARNING

Hazard statements Harmful if inhaled

Precautionary Statements - Prevention

Read product label prior to using this product. For specific handling instruction refer to Section 7, Handling and Storage

Precautionary Statements - Response

See Section 4, First Aid Measures

Precautionary Statements - Storage

For information on Storage and Handling see Section 7.

Precautionary Statements - Disposal

For further information on product and container disposal see Section 13.

Hazards not otherwise classified (HNOC)

Other Information

• Very toxic to aquatic life

• Very toxic to aquatic life with long lasting effects

100% of the mixture consists of ingredient(s) of unknown toxicity

For information on Transportation requirements see Section 14.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight/ Percent	TRADE SECRET
Thiobencarb (S-[(4-chlorophenyl)methyl] diethylcarbamothioate)	28249-77-6	14 - 17	
Magnesium silicate, hydrated †	63800-37-3	82.1 - 87.1	
Hydrated amorphous silica †	7631-86-9	82.1 - 87.1	
Quartz (crystalline silica)	14808-60-7	trace	

* The chemical name, CAS number and/or exact percentage have been withheld as a trade secret

Other ingredients, which may be 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:

Thiobencarb is a cholinesterase inhibitor. If signs of cholinesterase inhibition appear, atropine is antidotal.

5. FIRE FIGHTING MEASURES

Flash point °F	Not applicable
FLAMMABLE LIMITS IN /	AIR - LOWER (%):
FLAMMABLE LIMITS IN /	AIR - UPPER (%):

Not applicable 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 sulfur, nitrogen compounds 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: 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 is miscible/dispersible in water. Stop or reduce contamination of any water. Isolate contaminated water.

CLEANUP: Remove contaminated water for treatment or disposal.

7. HANDLING AND STORAGE

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

HANDLING:

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. 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. 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.

STORAGE:

Keep pesticide in original container only. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in cool, dry, secure place. Protect from excessive heat.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

EYES & FACE: Do not get this material in your eyes. Eye contact can be avoided by wearing safety goggles or a face shield.

RESPIRATORY PROTECTION: Use this material only in well ventilated areas. If ventilation is not adequate to keep airborne concentrations below recommended exposure standards, approved respiratory protection should be worn.

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

EXPOSURE LIMITS

Chemical Name	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Thiobencarb (S-[(4-chlorophenyl)methyl] diethylcarbamothioate)	None	None	None
Magnesium silicate, hydrated †	None	None	None
Hydrated amorphous silica †	10 mg/m ³ TWA (total amorphous dust) 3 mg/m ³ TWA (respirable nuisance particles)	6 mg/m³ (total dust)	None
Quartz (crystalline silica)	None	(10)/(%SiO2 + 2) mg/m³ TWA (250)/(%SiO2 + 5) mppcf TWA (30)/(%SiO2 + 2) mg/m³ TWA	None

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state Appearance Color Solid dry, free flowing granules Tan

Odor Odor threshold No information available No information available

PROPERTIES

pH Melting point/freezing point Boiling point/boiling range Flash point Values 7.7 at 25°C (1% suspension) No information available No information available Not applicable Remarks • Method

Evaporation rate Flammability (solid, gas) Flammability Limits in Air	No information available No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor density	No information available
Specific Gravity	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity	Not applicable
Explosive properties	No information available
Oxidizing properties	No information available
Density	No information available
Bulk density	0.754 g/mL = 47.0 lb/cu ft

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Extremes of temperature and direct sunlight.

Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

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

Oral Toxicity LD 50 (rats) Dermal Toxicity LD 50 (rabbits) Inhalation Toxicity LC 50 (rats) Eye Irritation (rabbits) Skin Irritation (rabbits) Skin Sensitization (guinea pigs) > 5,000 mg/kg > 5,000 mg/kg > 2.55 mg/L (4h)Slightly irritating Slightly irritating Non-sensitizer

EPA Tox Category IV EPA Tox Category IV EPA Tox Category IV **EPA Tox Category** Ш EPA Tox Category IV EPA Tox Category Not applicable

Page 5 of 10

CARCINOGEN CLASSIFICATION

Chemical Name	IARC	ACGIH	NTP Carcinogen List
Thiobencarb (S-[(4-chlorophenyl)methyl] diethylcarbamothioate)	Not listed	Not listed	Not listed
Magnesium silicate, hydrated †	Group 3	Not listed	Not listed
Hydrated amorphous silica †	Group 3	Not listed	Not listed
Quartz (crystalline silica)	Group 1	A2	Known Carcinogen

TOXICITY OF THIOBENCARB TECHNICAL

SUBCHRONIC: The dermal administration of Bolero 8 EC to rats, six hours per day, five days per week for three weeks, at doses up to 500 mg/kg/day caused reduced body weight gains, body weight and food efficiency. Slight increases in red, dry and flaky skin were observed. The LOEL was 40 mg/kg/day. An eight week dietary range-finding study in rats with thiobencarb technical at doses up to 450 mg/kg/day produced effects consistent with poor palatability (taste) such as weight loss, decreased food consumption, etc. In a 4-week oral toxicity study with thiobencarb technical in dogs with doses of 1, 4, 16 and 64 mg/kg/day, the primary observation was decreased plasma cholinesterase values in the 16 and 64 mg/kg/day dose groups

CHRONIC/CARCINOGENICITY: Prolonged administration of the active ingredient thiobencarb technical to rats, mice and dogs did not increase their incidence of cancer over that of untreated animals. The primary significant findings were generally attributable to the poor palatability of the diet (e.g. weight loss). The 2 year mouse oncogenicity study demonstrated no oncogenic potential. The systemic NOEL was 3 mg/kg/day for males and 5 mg/kg/day for females based on histopathological changes in the liver. The 2-year rat oncogenicity study showed no carcinogenicity at 25 mg/kg/day and a systemic NOEL of 1 mg/kg/day based on decreased body weight gain, food consumption and efficiency and increased blood urea nitrogen. A 1-year dog study showed a systemic NOEL of 8 mg/kg/day based on decreased body weight gain, increased liver and kidney weights, and hematological and clinical chemistry changes, and a plasma cholinesterase NOEL of 1 mg/kg/day.

NEUROTOXICITY: Based on acute and subchronic (13-week) studies in rats, thiobencarb technical is not expected to be neurotoxic. The systemic and neurobehavioral NOEL in the rat acute study was 100 mg/kg based on increased clinical signs and gait abnormalities, decreased sensory responses, decreased body temperature and decreased motor activity. In the subchronic study, the systemic NOEL was 2 mg/kg/day based on increased clinical signs, decreased body weights, and increased liver and kidney weights. The neurotoxicity NOEL was > 100 mg/kg/day, the highest dose tested.

DEVELOPMENTAL TOXICITY: Thiobencarb technical did not cause birth defects when tested in experimental animals. Teratology studies conducted in rats with 5, 25 and 150 mg/kg for gestation days 6 to 19 show no teratogenic effects at any dose level. Treatment with 150 mg/kg did, however, result in reduced maternal body weight gain and in reduced fetal weights. The maternal and developmental NOELs are 25 mg/kg/day. A teratology study was also conducted in rabbits at dose levels of 2, 20 and 100 mg/kg/day for the day 7-29 gestation period. Maternal body weight gain and mean fetal weights were reduced at 20 and 100 mg/kg/day dose levels, but there were no teratogenic effects. Shortening the treatment period in rabbits to gestation day 6 - 18 reduced maternal and fetal toxicity. Treatment with 20, 100 and 200 mg/kg/day produced no fetal toxicity, teratogenicity or significant maternal effects. Therefore, the maternal NOEL is 100 mg/kg/day and the developmental NOEL is 200 mg/kg/day (the highest dose tested).

REPRODUCTION: Two generation reproduction studies conducted with thiobencarb technical in rats at dose levels ranging from 2 to 100 mg/kg/day did not impair reproductive performance. Relative and absolute liver and kidney weights were increased in both F0 and F1 generations at 20 and 100 mg/kg/day. Decreased body weight gain was observed at 100 mg/kg/day in both generations of the male and in the F1 female generation. The reproductive toxicity NOEL was 100 mg/kg/day.

MUTAGENICITY: Thiobencarb technical is not expected to pose a genetic hazard. It has been studied in in vitro assays for gene mutation, structural chromosome aberrations and DNA damage/repair as well as in vivo assays measuring micronucleus formation and in the dominant lethal assay. The results for all tests except the in vivo micronucleus test were negative. This single report of a positive response is not cause for concern when evaluated in the context of the oncogenicity, teratogenicity and reproductive toxicity studies.

TOXICITY OF OTHER INGREDIENTS:

This product contains crystalline silica. Repeated inhalation of the dust may cause insidious lung injury and possibly silicosis. In patients with silicosis, areas of the lung become filled with scar tissue. The signs and symptoms may include cough, shortness of breath, difficulty in breathing, and loss of weight. The disease can progressively worsen and result in death. In their Monograph - Volume 42, the International Agency for Research on cancer (IARC) classified crystalline silica as a probable human carcinogen. Users of this product should confirm that their operating, storage, and distribution facilities comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for all materials containing more than 0.1% crystalline silica. Employee exposures to airborne crystalline silica dust should be controlled to below the OSHA 8 hour PEL for the particular type of crystalline silica present.

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:	Thiobencarb technical is practically nontoxic to birds. Test results include:
	Oral LD ₅₀ Northern bobwhite: >1938 mg/kg Oral LC ₅₀ (feeding for 8 weeks) Northern bobwhite: >5620 ppm Oral LC ₅₀ (feeding for 5 days) Mallard duck: >5000 ppm Reproduction (Northern bobwhite): NOEC: 267 ppm, LOEC: 930 ppm Reproduction (Mallard duck): NOEC: 100 ppm, LOEC: 300 ppm
AQUATIC ORGANISM TOXICITY	Freshwater species: Thiobencarb technical is moderately to highly toxic to freshwater fish and invertebrates. Studies with the technical material and the formulated product show that the LC50's were generally greater than 1 ppm. The following LC ₅₀ values summarize the acute toxicity findings for Bolero 8 EC:
	Bluegill sunfish: 1.7 ppm Rainbow trout:: 1.1 ppm Channel catfish: 2.3 ppm Daphnid: 0.17 ppm Scud Gammarus: 1.0 ppm Apple snail: 1.85 ppm
	Thiobencarb technical can inhibit the reproduction in freshwater invertebrates (Daphnid) at concentrations as low as $3.0 \mu g/L$. Marine/estuarine species: Thiobencarb technical and Bolero 8 EC are moderately to highly acutely toxic to marine/estuarine fish and invertebrates.
OTHER NON-TARGET ORGANISM TOXICITY:	Exposure of non-target organisms such as honey bees is not expected under normal use conditions of products containing Thiobencarb Technical.

OTHER ENVIRONMENTAL INFORMATION:

This product is toxic to fish and shrimp. 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.

CONTAINER DISPOSAL: Nonrefillable outer bag. Do not reuse or refill the outer bag. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

DISPOSAL METHODS: Do not contaminate water, food or feed by storage, disposal or cleaning of equipment. Open dumping is prohibited. Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

14. TRANSPORTATION INFORMATION

DOT (ground) SHIPPING NAME: EMERGENCY RESPONSE GUIDEBOOK NO.:	Not regulated for domestic ground transport by U.S. DOT Not applicable
ICAO/IATA PROPER SHIPPING NAME: REMARKS:	UN 3082 Environmentally Hazardous Substance, Solid, N.O.S. (Thiobencarb), 9, III, Marine Pollutant Single or inner packaging less than 5 L (liquid) or 5 Kg net (solids) excepted from Dangerous Goods regulations see UN Special Provision 375. For U.S. Shipping, Emergency Response Guidebook No. 171
IMDG PROPER SHIPPING NAME: EMS NO.:	UN 3082 Environmentally Hazardous Substance, Solid, N.O.S. (Thiobencarb), 9, III, Marine Pollutant F-A, S-F

15. REGULATORY INFORMATION

EPA-FIFRA LABEL INFORMATION THAT DIFFERS FROM OSHA-GHS REQUIREMENTS:

This material is a pesticide product registered by the EPA under FIFRA and is subject to certain labeling requirements under federal pesticide law. These requirements may differ from the classification criteria and hazard information required by OSHA GHS for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the hazard information as required on the FIFRA pesticide label:

EPA FIFRA SIGNAL WORD: CAUTION
Causes eye irritation
Avoid contact with eyes, skin and clothing
Avoid breathing dust
Keep out of reach of children

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: 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.

Thiobencarb (S-[(4-chlorophenyl)methyl] diethylcarbamothioate)

	-		
SARA 31	13 C	Chemical	s

1.0% de minimis concentration

SARA (311, 312):

Immediate Health:	Yes
Chronic Health:	Yes
Fire:	No
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.

Thiobencarb (S-[(4-chlorophenyl)methyl] diethylcarbamothioate)

California - Directors List of	Present
Hazardous Substances	
NJ Right To Know	3472
Hydrated amorphous silica †	
California - Directors List of	Present
Hazardous Substances	
MA Right To Know	Present
NJ Right To Know	1655
PA Right To Know	Present
MN Hazardous Substance	Carcinogen
Quartz (crystalline silica)	
California Proposition 65	carcinogen
MA Right To Know	Carcinogen
	Extraordinarily hazardous
NJ Right To Know	1660
PA Right To Know	Present
RI Right To Know	Listed
MN Hazardous Substance	Carcinogen
	-

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

16. OTHER INFORMATION		
REASON FOR ISSUE:	Updated information to meet OSHA Hazcom 2012 (GHS) regulations.	
SDS NO.:	0351	
EPA REGISTRATION NUMBER:	59639-112	
REVISION NUMBER:	1	
REVISION DATE:	12/13/2013	
SUPERCEDES DATE:		
RESPONSIBLE PERSON(S):	Valent U.S.A. Corporation, Corporate EH&S, (925) 256-2803	

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS 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 SDS 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 SDS.

Judgements as to the suitability of information herein for the individual's own use or purposes are necessarily the individual's own responsibility. Although reasonable care has been taken in the preparation of such information, Valent extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the individual's purposes or the consequences of its use.

2013 Valent U.S.A. Corporation