



Safety Data Sheet

Crossfire Insecticide Bed Bug Concentrate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Crossfire Insecticide Bed Bug Concentrate
EPA REGISTRATION NUMBER: 73049-482
CHEMICAL DESCRIPTION: Mixture; a.i.'s: Metofluthrin, piperonyl butoxide, and clothianidin
SYNONYM(S): None
PRODUCT DESCRIPTION: Insecticide

MANUFACTURER

Valent BioSciences Corporation
870 Technology Way
Libertyville, IL 60048

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY OR SPILL (24 hr):
Within the United States: (877) 315-9819
Outside the United States: (651) 632-6184

PRODUCT INFORMATION

ENVIRONMENTAL SCIENCE PRODUCTS:
(866) 822-3731
www.valentbiosciences.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

- May be harmful if inhaled or swallowed
- Avoid contact with eyes, skin and clothing
- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- May be toxic to bees
- Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure): Inhalation, eye and skin contact

Signs and Symptoms of Systemic Effects: This product contains a pyrethroid. Pyrethroids produce salivation, diarrhea, weakness tremors and convulsions in laboratory animals exposed to high doses.

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 is slightly toxic when absorbed through the skin. 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 not expected to cause allergic skin reactions. This product contains a pyrethroid. Skin contact with pyrethroids can result in a temporary burning, tingling or itching sensation.

Acute Ingestion: This product is moderately toxic when ingested.

Acute Inhalation: This product is minimally toxic when inhaled.

Potentially Aggravated Medical Conditions: Individuals with allergy history or pre-existing dermatitis should use extra precautions in handling this product.

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
Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine]	210880-92-5	4	Active Ingredient
Piperonyl butoxide (5-[[2-(2-butoxyethoxy)ethoxy]methyl]-6-propyl-1,3-benzodioxole)	51-03-6	10	Active Ingredient
Metofluthrin	240494-70-6	0.1	Active Ingredient
Water	7732-18-5	> 80	Diluent
Other ingredients	Various CAS#s	5 - 15	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 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 **(877) 315-9819** (within the United States) or **(651) 632-6184** (outside the United States) at any time.

4. FIRST AID MEASURES

EMERGENCY NUMBER **EMERGENCY NUMBER: within the United States (877) 315-9819;**
outside the United States (651) 632-6184

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

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:

Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. 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:

This product contains a Pyrethroid pesticide. If a small amount is ingested (or if treatment is delayed) oral administration of large amounts of activated charcoal and a cathartic is probably sufficient therapy. If large amounts are ingested and vomiting has not occurred emesis should be induced with supervision. Keep patients head below hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

Do not administer milk, cream or other substance containing vegetable or animal fats, which enhance the absorption of lipophilic substances.

If localized paresthesia develops, the site should be thoroughly washed with soap and water. Cold cream can be applied to help diminish the effect.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable
EXTINGUISHING MEDIA: Foam, carbon dioxide, or dry chemical.

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: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear.

HAZARDOUS DECOMPOSITION PRODUCTS: Heat and fire may result in thermal decomposition. May form toxic materials such as: Carbon dioxide,

6. ACCIDENTAL RELEASE MEASURES

VALENT BIOSCIENCES EMERGENCY PHONE NUMBER:

WITHIN THE UNITED STATES: (877) 315-9819

OUTSIDE OF THE UNITED STATES: (651) 632-6184

UN/NA NUMBER: Not applicable**EMERGENCY RESPONSE GUIDEBOOK NO.:** Not applicable**If it is safe to do so:**

- Evacuate non-essential personnel from the area to prevent human exposure.
- Remove all sources of ignition.
- Ventilate area, especially low areas where vapors may accumulate.
- Stop the source of the spill. Contain the spill to prevent further contamination of the soil, surface water, or ground water.
- May produce slippery conditions.

GENERAL AND DISPOSAL: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the adverse effect of the spill. For additional spill response information refer to the **North American Emergency Response Guidebook**, if applicable. Ensure that the disposal is in compliance with all Federal, State, and local regulations. Refer to Section 14 for applicable Reportable Quantity (RQ) and other regulatory requirements.

7. HANDLING AND STORAGE

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

HANDLING PRECAUTIONS: Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Avoid breathing vapors. Avoid contamination of feed and foodstuffs. Remove contaminated clothing and wash clothing before reuse.

STORAGE: Do not contaminate water, food or feed by storage or disposal. Store in a cool, dry place. Store upright at room temperature. Avoid exposure to extreme temperature.

WORK/HYGIENIC PRACTICES: Wash thoroughly with soap and water after handling and before smoking or eating. Remove contaminated clothing and wash clothing before reuse.

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 protective eyewear.

RESPIRATORY PROTECTION: Not required with normal use. Use in a well ventilated area.

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.

ENGINEERING CONTROLS: Exhaust ventilation.

EXPOSURE LIMITS

Chemical Name	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Clothianidin [(E)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine]	None	None	None
Piperonyl butoxide (5-[[2-(2-butoxyethoxy)ethoxy]methyl]-6-propyl-1,3-benzodioxole)	None	None	None
Metofluthrin	None	None	None
Water	None	None	None
Other ingredients	None	None	None

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM:	Liquid at 23° C
COLOR:	White
ODOR:	Mild aromatic
FLASH POINT:	Not applicable
DENSITY:	1.022 g/mL @ 22.5° C
pH:	5.87 @ 25.2° C
VISCOSITY:	283 cps (spindle 2, speed 60) @ 20° C; 337 cps (spindle 2, speed 60) @ 40° C

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures.
INCOMPATIBILITY:	Not determined
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	Not expected to be explosive
HAZARDOUS POLYMERIZATION :	Will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS:	Heat and fire may result in thermal decomposition. May form toxic materials such as: Carbon dioxide,
CONDITIONS TO AVOID:	Heat or open flame

11. TOXICOLOGICAL INFORMATION**ACUTE TOXICITY:**

Oral Toxicity LD ₅₀ (rats)	>5,000 mg/kg (females)	EPA Tox Category	IV
Dermal Toxicity LD ₅₀ (rats)	5,000 mg/kg	EPA Tox Category	IV
Inhalation Toxicity LC ₅₀ (rats)	2.15 mg/L	EPA Tox Category	IV
Eye Irritation (rabbits)	Non-irritating	EPA Tox Category	IV
Skin Irritation (rabbits)	Non-irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	

CARCINOGEN CLASSIFICATION

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]	No	No	No	Not listed
Piperonyl butoxide (5-[[2-(2-butoxyethoxy)ethoxy]methyl]-6-propyl-1,3-benzodioxole)	No	No	No	Not listed
Metofluthrin	No	No	No	Not listed
Water	No	No	No	Not listed
Other ingredients	No	No	No	Not listed

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). In a subchronic dermal study with rats, the NOAEL is > 1,000 mg/kg/day.

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.

NEUROTOXICITY: Clothianidin is not a neural toxin.

MUTAGENICITY: The overall weight of evidence indicates that Clothianidin is not mutagenic.

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:**

The following results were obtained from studies with Clothianidin Technical:

LD₅₀ Japanese quail: = 430 mg/kg
 LD₅₀ Northern bobwhite: > 2000 mg/kg
 LC₅₀ Northern bobwhite: > 5200 ppm
 LC₅₀ 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
 Mysis 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:

The following information is based on Clothianidin Technical:
 Honeybee 48-hour oral LD₅₀: = 0.0037ug (microgram)/bee
 Honeybee 48-hour contact LD₅₀: = 0.044 ug (microgram)/bee
 Earthworm 7-day LC₅₀: = 19 mg/kg dry soil

OTHER ENVIRONMENTAL INFORMATION:

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. Do not contaminate water when disposing of equipment wash waters.

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:

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

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:	Not regulated under US DOT.
UN/NA NUMBER:	Not applicable
DOT (ground) SHIPPING NAME:	Not applicable for Domestic Ground (DOT)
TECHNICAL NAME (hazardous material):	Not applicable
HAZARD CLASS:	Not applicable
PACKING GROUP:	Not applicable
DOT REPORTABLE QUANTITY (RQ):	None
REMARKS:	None
EXEMPTION REQUIREMENT:	None
EMERGENCY RESPONSE GUIDEBOOK NO.:	Not applicable
MARINE POLLUTANT:	Yes, (for active ingredient), see IMO regulations.

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:

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.

Piperonyl butoxide (5-[[2-(2-butoxyethoxy)ethoxy]methyl]-6-propyl-1,3-benzodioxole)TSCA Inventory List -
SARA 313 ChemicalsListed
1.0% de minimis concentration**SARA (311, 312):**

Immediate Health:	Yes
Chronic Health:	No
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.

Piperonyl butoxide (5-[[2-(2-butoxyethoxy)ethoxy]methyl]-6-propyl-1,3-benzodioxole)

NJ Right To Know 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: Updated product name.
EPA REGISTRATION NUMBER: 73049-482
SDS NO.: ENV-0195
REVISION NUMBER: 5
REVISION DATE: 03/13/2013
SUPERCEDES DATE: January 30, 2013
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 MSDS is based on data available to us as of the revision date given herein, and believed to be correct. Contact Valent Biosciences to confirm if you have the most current MSDS.

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 Biosciences Corporation