



BAYER CROPSCIENCE LP
P.O. Box 12014
2 T.W. Alexander Drive
Research Triangle Park, NC 27709

For Medical and Transportation Emergencies Only:

Call 24 hours a day 1-800-334-7577

For Product Use Information: Call 1-866-99BAYER (1-866-992-2937)

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: BAYTHROID 2 Emulsifiable Pyrethroid Insecticide
PRODUCT CODE.....: 11639
CHEMICAL FAMILY.....: Pyrethroid Insecticide
CHEMICAL NAME.....: Cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2
-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
SYNONYMS.....: Cyfluthrin
FORMULA.....: C22 H18 Cl2 F N O3
EPA Registration No.: 264-745

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
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***** HAZARDOUS INGREDIENTS *****

BAYTHROID (cyfluthrin)

68359-37-5	OSHA : Not Established	25 %
	ACGIH: Not Established	

Ingredient 1975

Specific chemical identity is withheld as a trade secret.
OSHA : Not Established 3-5 %
ACGIH: Not Established

Naphthalene

91-20-3	OSHA : 10.00 ppm TWA	5-10 %
	ACGIH: 10.00 ppm TWA	

2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)

Ingredient 1510	Specific chemical identity is withheld as a trade secret.	
	OSHA : Not Established	60-70 %
	ACGIH: Not Established	

Ingredient 2037	Specific chemical identity is withheld as a trade secret.	
	OSHA : Not Established	3-5 %
	ACGIH: Not Established	
Ingredient 1976 may be used as an alternate to this material.		

3. HAZARDS IDENTIFICATION:

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*                               *
*           EMERGENCY OVERVIEW           *
*                               *
* DANGER!  Color: Dark amber;  Form: Liquid; Clear;  Odor:      *
* Aromatic; May be fatal if inhaled; Harmful if absorbed      *
* through skin; Causes eye burns; Harmful if swallowed.      *
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POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Skin Absorption;
Eye Contact

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE EFFECTS OF EXPOSURE.....: Severe eye irritation may occur from contact with the liquid resulting in tearing and/or reddening of the eyes. Moderate skin irritation may also occur from contact with the liquid and produce symptoms such as itching, skin reddening or rash. Paraesthesia (a tingling or burning sensation on the surface of the skin) may also result from skin contact. This is a frequently reported symptom associated with sufficient dermal exposure to alpha-cyano (or Type II) synthetic pyrethroids and normally subsides without treatment within 24 hours. Mucous membrane irritation involving the nose, throat and upper respiratory tract may occur from inhalation of aerosols during end use of the product such as spray application. This product contains aromatic hydrocarbon solvents. High vapor concentrations (greater than approximately 1000 ppm) can be irritating to the eyes, nose and throat, and may cause headaches, dizziness, nausea, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death. Based on EPA Toxicity Category criteria, this product is mildly toxic by the oral and dermal routes of exposure. In addition, animal studies have shown that this product is a dermal sensitizer. Refer to Toxicological Information (Section 11) for additional information.

CHRONIC EFFECTS OF EXPOSURE...: Based on animal studies, no adverse effects or symptoms would be expected from chronic exposure to the active ingredient

3. HAZARDS IDENTIFICATION (Continued)

in this product during normal use. However, repeated skin contact may result in defatting of the skin by the solvents in the product which can lead to redness and irritation of the skin. Chronic overexposure to these solvent components may cause mucous membrane irritation, nausea, headache, loss of appetite, weakness and alcohol intolerance.

CARCINOGENICITY.....: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: No specific medical conditions are known which may be aggravated by exposure to the active ingredient in this product. As with all materials which can cause upper respiratory tract irritation, persons with a history of asthma, emphysema, or hyperreactive airways disease may be more susceptible to a response at low concentration. Certain skin conditions may also be aggravated by repeated contact with the solvents in this mixture.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: 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.

FIRST AID FOR SKIN.....: 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.

FIRST AID FOR INHALATION: Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

FIRST AID FOR 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.

NOTE TO PHYSICIAN.....: ANTIDOTE - No specific antidote is available. Treat symptomatically. Product contains petroleum distillate - vomiting may cause aspiration pneumonia. Published data indicate vitamin E acetate can prevent and/or mitigate symptoms of paraesthesia caused by synthetic pyrethroids. In case of intoxication, call the emergency number on page 1.

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: 144 F

FLAMMABLE LIMITS:

UPPER EXPLOSIVE LIMIT (UEL)(%): Not established

LOWER EXPLOSIVE LIMIT (LEL)(%): Not established

EXTINGUISHING MEDIA.....: Foam; Dry Chemical

SPECIAL FIRE FIGHTING PROCEDURES: Keep out of smoke. Cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain runoff by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing vapors and skin contact. Remove sources of ignition if combustible or flammable vapors may be present and ventilate area. Wear proper protective equipment. Dike contaminated area with absorbent granules, soil, sand, etc. If large spill, material should be recovered. Small spills can be absorbed with absorbent granules, spill control pads, or any absorbent materials. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with detergent and bleach solution and/or detergent and lye in water solution. Repeat. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be disposed. Do not allow material to enter streams, sewers, or other waterways or contact vegetation.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): 32 F/60 day average not to exceed 120 F

SHELF LIFE.....: Time/temperature-dependent. Contact Bayer for additional information.

SPECIAL SENSITIVITY.....: Heat, moisture

HANDLING/STORAGE PRECAUTIONS: Store in a cool, dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Splash-proof goggles or faceshield should be used to prevent liquid splashes from getting into the eyes.

SKIN PROTECTION REQUIREMENTS.....: Avoid skin contact. Use chemical-resistant gloves such as nitrile, boots or shoe covers, and apron to prevent dermal exposure.

VENTILATION REQUIREMENTS.....: Maintain exposure levels below exposure limits through use of general and local exhaust ventilation.

RESPIRATOR REQUIREMENTS.....: When needed, based on the conditions of use, wear a NIOSH-approved organic vapor respirator with particulate pre-filter.

ADDITIONAL PROTECTIVE MEASURES.....: Clean water and soap should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing separately after use. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid

APPEARANCE.....: Clear

COLOR.....: Dark amber

ODOR.....: Aromatic

ODOR THRESHOLD.....: Not established

MOLECULAR WEIGHT.....: 434.3 (for cyfluthrin)

pH: Not established

BOILING POINT.....: Not established

MELTING/FREEZING POINT....: Not applicable / <32 F

SOLUBILITY IN WATER: 2 ppb (for cyfluthrin)

SPECIFIC GRAVITY: 0.983 (20/20 C)

BULK DENSITY.....: Not applicable

% VOLATILE BY VOLUME.....: Not established

VAPOR PRESSURE: 3.3×10^{-8} mm Hg @ 20 C (for cyfluthrin)

VAPOR DENSITY: Not established (Air = 1)

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.

HAZARDOUS POLYMERIZATION...: Will not occur.

INCOMPATIBILITIES.....: Alkaline media; reacts with methanol; incompatible with most disinfectants

INSTABILITY CONDITIONS.....: Not Noted

DECOMPOSITION PRODUCTS.....: Not established

11. TOXICOLOGICAL INFORMATION:

Only a sensitization study has been conducted on this product as formulated. The other acute toxicity data provided have been extrapolated from a similar formulation of BAYTHROID 2. The non-acute information pertains to the active ingredient, cyfluthrin.

ACUTE TOXICITY

ORAL LD50.....: Male rat: 1015 mg/kg - Female rat: 826 mg/kg

DERMAL LD50.....: Male and Female Rabbit: >2000 mg/kg

INHALATION LC50....: 4 hr exposure to Liquid Aerosol: Male Rat: 1.323 mg/l (analytical) -- Female Rat: 1.434 mg/l (analytical); 1 hr exposure to Liquid Aerosol (extrapolated from 4 hr LC50): Male Rat: 5.292 mg/l (analytical) -- Female Rat: 5.736 mg/l (analytical)

EYE EFFECTS.....: Rabbit: Severe eye irritant with corneal opacity persisting to at least 21 days.

SKIN EFFECTS.....: Rabbit: Moderate dermal irritant.

SENSITIZATION.....: Guinea Pig: Positive dermal sensitizer.

SUBCHRONIC TOXICITY...: In a 3 week dermal toxicity study, cyfluthrin was administered to rats for 6 hours/day at dose levels of 100, 340 or 1000 mg/kg. Animals received a total of 17-18 applications in a period of 22-23 days. An additional control and high-dose group were treated and maintained for 14-15 days following treatment so as to ascertain the extent of recovery. Effects observed included reduced feed consumption, red nasal discharge, urine stains, and findings at the dose site (scabbing, crusty, discolored and raised zones). Histologically, epidermal and dermal alterations in treatment skin were observed in animals of the mid- and high-dose groups. Similar, but slightly less severe microscopic alterations were also observed in the high-dose recovery group. The overall NOEL was 100 mg/kg. In a 13 week inhalation study, rats were exposed to cyfluthrin at aerosol concentrations of 0.09, 0.71 or 4.51 mg/m³ for 6 hours/day, 5 days/week. The NOEL was 0.09 mg/m³ based on reduced body weight gains.

CHRONIC TOXICITY.....: Cyfluthrin has been investigated in chronic feeding studies using two different strains of rats. In each study, cyfluthrin was administered for 2 years at dietary concentrations ranging from 50 to 450 ppm. Body weight gains were decreased at concentrations of 150 ppm and greater. Changes in clinical chemistries occurred at 450 ppm. In one of the studies, histopathology revealed a numerical increase in mammary gland adenocarcinomas at 450 ppm. This finding was not statistically significant when compared to the controls and is not considered to be compound-related. In each study, the overall NOEL was 50 ppm based on decreased body weight gains. In a 1 year feeding study, dogs were administered cyfluthrin at dietary concentrations of 50, 100, 360 or 650 ppm. Beginning on week 8, the high-dose was reduced to 500 ppm for the remainder of the study due to severe clinical neurological symptoms. Body weights were decreased for animals of the high-dose. Neurological findings (gait abnormalities and postural reaction deficits) were observed at doses of 360 and greater. The NOEL was 100 ppm.

CARCINOGENICITY.....: Cyfluthrin was investigated for carcinogenicity in chronic studies using several different strains of rats and mice. In rats,

11. TOXICOLOGICAL INFORMATION (Continued)

the maximum level tested was 450 ppm. Maximum levels tested in mice were 1400 and 1600 ppm for males and females, respectively. There was no evidence of a carcinogenic potential observed in any of the strains in either species.

MUTAGENICITY.....: Numerous in vitro and in vivo mutagenicity studies have been conducted on cyfluthrin, all of which are negative.

DEVELOPMENTAL TOXICITY: In developmental toxicity studies using rats, cyfluthrin was administered during gestation by oral gavage at doses ranging from 1 to 30 mg/kg. The overall NOEL from these studies for maternal toxicity was 3 mg/kg. No developmental effects were observed at any of the doses tested. In each study, the NOEL for developmental toxicity was equivalent to the highest dose tested. The NOELs for developmental toxicity for the initial study and the subsequent study were 30 and 10 mg/kg, respectively. Rabbits were administered cyfluthrin during gestation by oral gavage at doses ranging from 5 to 180 mg/kg. At maternally toxic levels, there was an increased incidence of post-implantation losses. The overall NOEL derived from these studies for both maternal and developmental toxicity was 20 mg/kg. In an inhalation study, rats were exposed during gestation to cyfluthrin at aerosol concentrations of 0.46, 2.55 or 11.9 mg/m³ for 6 hours/day. NOELs for maternal and developmental toxicity were less than 0.46 and 0.46 mg/m³, respectively.

REPRODUCTION.....: In a reproduction study, cyfluthrin was administered to rats for 3 generations at dietary concentrations of 50, 150 and 450 ppm. Reproductive effects observed at parentally toxic levels included reductions in viability, lactation, litter size, feed consumption, and pup birth weights and body weight gains. Coarse tremors were observed in some offspring at 450 ppm. The NOEL for both parental and reproductive effects was 50 ppm. In another reproduction study, cyfluthrin was administered to rats for 2 generations at dietary concentrations of 50, 125 or 400 ppm. Coarse tremors occurring in conjunction with parental toxicity were observed in the offsprings in the mid- and high-dose groups. Based on this finding, the neonatal NOEL was 50 ppm. The NOELs for parental and reproductive toxicity were 50 and 400 ppm, respectively.

NEUROTOXICITY: Numerous neurotoxicity studies have been conducted on cyfluthrin. Oral gavage studies using hens have indicated that at extremely high dose levels (5000 mg/kg), minimal nerve damage occurs. When rats were administered cyfluthrin daily at oral doses of 40 to 80 mg/kg for 14 days, minimal nerve effects were seen. These effects were completely reversible within a 3 month recovery period. In dermal and inhalation studies which are more relevant to field exposure, there was no evidence of delayed neurotoxicity in hens. In a special investigative study, litters of neonatal mice (10 days of age) and their mothers were exposed to cyfluthrin via inhalation (whole body exposure). Mice were exposed to aerosol concentrations of 5, 15, or 50 mg/m³ for 6.3 hours/day for 7 successive days. Motor activity was measured in the offspring at 4 months of age (approximately 3.5 months post-exposure). At 50 mg/m³, all of the offspring died or were sacrificed in a moribund state following the first exposure. Mortalities were not observed at any of the other levels. Clinical symptoms were observed immediately after exposure in young mice at 15 mg/m³, and included decreased motility, temporary scratching, and tonic convulsions. There was an increase in motor activity in mice at 15 mg/m³. Histopathological investigations did not reveal any treatment-related findings in mice at the age of 4 months.

12. ECOLOGICAL INFORMATION:

This product is extremely toxic to fish and aquatic invertebrates. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern. In event of a spill emergency, call the emergency number on page 1.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Follow container label instructions for disposal of wastes generated during use in compliance with the FIFRA product label. In other situations, burn in a RCRA hazardous waste incinerator. Do not reuse container unless authorized by Bayer.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Cyfluthrin
FREIGHT CLASS BULK.....: Insecticides, NOI - NMFC 102100
FREIGHT CLASS PACKAGE.....: Insecticides, NOI - NMFC 102100
PRODUCT LABEL.....: BAYTHROID 2 Emulsifiable Pyrethroid
Insecticide

DOT (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: Pyrethroid Pesticide, Liquid, Toxic
HAZARD CLASS OR DIVISION: 6.1
UN/NA NUMBER.....: UN3352
PACKING GROUP: III
HAZARDOUS SUBSTANCE.....: Napthalene
DOT PRODUCT RQ lbs (kgs).....: 1,000 lbs (453.6 kgs)
HAZARD LABEL(s).....: Toxic
HAZARD PLACARD(s).....: Toxic

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: Pyrethroid Pesticide, Liquid, Toxic
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN3352
PACKAGING GROUP.....: III
HAZARD LABEL(s).....: Toxic
HAZARD PLACARD(s).....: Toxic

14. TRANSPORTATION INFORMATION (Continued)

IMO / IMDG CODE (continued)

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: Pyrethroid Pesticide, Liquid, Toxic
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN3352
SUBSIDIARY RISK.....: None
PACKING GROUP.....: III
HAZARD LABEL(s).....: Toxic
RADIOACTIVE?.....: Non-Radioactive
PASSENGER AIR - MAX. QTY.: 60 L
PASSENGER PACKING INSTRUCTION..: 611
CARGO AIR - MAX. QTY.: 220 L
CARGO AIR PACKING INSTRUCTION..: 618

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of
the Federal OSHA Hazard Communication Standard 29
CFR 1910.1200.
TSCA STATUS.....: This product is exempt from TSCA Regulation under
FIFRA Section 3 (2)(B)(ii) when used as a
pesticide.
CERCLA REPORTABLE QUANTITY...: 1470 pounds of formulation which contains 100
pounds of naphthalene
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES...: None
SECTION 311/312
HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard;
Fire Hazard
SECTION 313
TOXIC CHEMICALS.....: Cyfluthrin - 25% (CAS No. 68359-37-5);
Naphthalene - 6.8% (CAS No. 91-20-3)
RCRA STATUS.....: If discarded in its purchased form, this product
would not be a hazardous waste either by listing
or by characteristic. However, under RCRA, it is
the responsibility of the product user to
determine at the time of disposal, whether a
material containing the product or derived from
the product should be classified as a hazardous
waste. (40 CFR 261.20-24)

16. OTHER INFORMATION:

NFPA 704M RATINGS: Health Flammability Reactivity Other
 2 2 1
 0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Revise address, telephone nubmers, and new EPA Reg. No.
PREPARED BY.....: T. M. Myers
APPROVED BY.....: S. E. Earnest
TITLE.....: Manager, Quality Systems Services
APPROVAL DATE.....: 03/07/2003
SUPERSEDES DATE.....: 06/26/2002
MSDS NUMBER.....: 18382

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Product Code: 11639
Approval date: 03/07/2003

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