MATERIAL SAFETY DATA SHEET

OLYMPIC HORTICULTURAL PRODUCTS

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TRANSPORTATION EMERGENCY
CALL CHEMTREC 800-424-9300
DISTRICT OF COLUMBIA 202-483-7616

NON-TRANSPORTATION
OLYMPIC/BAYER EMERGENCY PHONE . . 800-414-0244
OLYMPIC INFORMATION PHONE 800-659-6745

DECATHLON™ 20 WP GREENHOUSE AND NURSERY INSECTICIDE

EPA Registration Number: 3125-43 -598 7

I. PRODUCT IDENTIFICATION:

PRODUCT NAME . . . . . .: Decathlon 20 WP Greenhouse and Nursery Insecticide
CHEMICAL FAMILY . . . . . .: Pyrethroid Insecticide
CHEMICAL NAME . . . . . .: Cyano (4-fluoro-3-phenoxyphenyl) methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
SYNONYMS . . . . . .: Cyfluthrin
FORMULA . . . . . .: C22 H18 C12, F N 03

II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION(%)
DECATHLON (cyfluthrin)		
68359-37-5	OSHA : Not Established ACGIH : Not Established	20%
Ingredient 1968		
Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH : Not Established	1-5%
Total Crystalline Silica (quartz)		
14808-60-7	OSHA : 100 mg/m3 TWA (respirable) ACGIH : 100 mg/m3 TWA (respirable)	<1-7%

III. PHYSICAL PROPERTIES:

PHYSICAL FORM . . . . . .: Powder
COLOR . . . . . .: Tan
ODOR . . . . . .: Slightly aromatic
ODOR THRESHOLD . . . . . .: Not established
MOLECLUAR WEIGHT . . . . . .: 434.3 (for cyfluthrin)
pH . . . . . .: 9.2 (1% Solution)
BOILING POINT . . . . . .: Not applicable
MELTING/FREEZING POINT . . .: Not applicable
SOLUBILITY IN WATER . . . . . .: 2 ppb (for cyfluthrin)
SPECIFIC GRAVITY . . . . . .: Not applicable
BULK DENSITY . . . . . .: Approximately 30 lb/cu ft
% VOLATILE BY VOLUME . . . .: Not established
VAPOR PRESSURE . . . . . .: 3.3 x 10 -8 mm Hg @ 20 C (for cyfluthrin)
VAPOR DENSITY . . . . . .: Not established (Air = 1)

IV. FIRE AND EXPLOSION DATA:

FLASH POINT . . . . . .: Not applicable
FLAMMABLE LIMIITS:
UPPER EXPLOSIVE LIMIT (UEL) (%) . . . . . .: Not applicable
LOWER EXPLOSIVE LIMIT (LEL) (%) . . . . . .: Not applicable
EXTINGUISHING MEDIA . . .: Water; Dry Chemical
SPECIAL FIRE FIGHTING PROCEDURES . . . . . .: If involved in fire, wear self contained breathing apparatus and stay up-wind.

V. HUMAN HEALTH DATA

ROUTE(S) OF ENTRY . . . . . .: Dermal contact and inhalation of the product are the primary routes of entry. Inhalation of aerosol during spray application of the product as part of its end use is another potential route of entry.

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE EFFECTS OF EXPOSURE . . . . . .: The active ingredient in this product has low toxicity, and no specific systemic symptoms of overexposure are known to occur in humans. Mild eye or skin irritation such as itching, stinging, redness or rash may occur from contact with the powder or spray mixture. Paresthesia (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 synthetic pyrethroids and normally subsides without treatment within 24 hours. The onset of these symptoms usually occurs 2-12 hours after exposure. 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.

CHRONIC EFFECTS OF EXPOSURE . . . . . .: Based on animal studies, noadverse effects or symptoms would be expected from chronic exposure to the active ingredient in this product during normal use. This product may contain an amount of total crystalline silica which ranges from less than 1% to approximately 7%. However, the amount of respirable crystalline silica is expected to be significantly lower based on data provided by the raw material manufacturer. Excessive long-term exposure to respirable crystalline silica may cause silicosis, a form of progressive pulmonary fibrosis. Severe and permanent lung damage may result.

CARCINOGENICITY . . . . . .: DECATHLON 20 WP is not listed as a carcinogen by NTP or IARC, or regulated as a carcinogen by OSHA. However, it may contain crystalline silica (quartz), a substance which is classified by NTP as a Group 2 carcinogen and by IARC as a Group 2A carcinogen. Crystalline silica is a naturally occurring mineral component of many sands and clays. Considerable controversy exists regarding the carcinogenic potential of crystalline silica in humans, but based on animal data, the potential must be considered relevant if crystalline silica is inhaled under excessive exposure conditions. However, the respirable portion of the silica which may be contained in this product is small, such that excessive inhalation exposure during normal conditions of use is unlikely.

NTP . . . . . .: Crystalline silica is classified as an NTP Anticipated Human Carcinogen - "Substances or groups of substances that may reasonably be anticipated to be carcinogens."

IARC . . . . . .: "IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans," Vol. 42 - for Crystalline Silica (Quartz) - determined that "There is sufficient evidence for the carcinogenicity of crystalline silica to experimental animals. There is limited evidence for the carcinogenicity of crystalline silica to humans."

OSHA . . . . . .: Not regulated.

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 overexposure. In addition, pulmonary and respiratory diseases may be aggravated by exposure to respirable crystalline silica.

VI. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES . . . . . .: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.

FIRST AID FOR SKIN . . . . . .: Wash skin immediately with soap and warm water. Get medical attention if irritation persists.

FIRST AID FOR INHALATION . .: If a person is overcome by excessive exposures to dusts or aerosols of this material, remove to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.

FIRST AID FOR INGESTION . .: If ingestion is suspected, call a physician or poison control center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 or 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN . . . . . .: **ANTIDOTE** - No specific antidote is available. Treat victim symptomatically. Published data indicate Vitamin E acetate can prevent and/or mitigate symptoms of paresthesia caused by synthetic pyrethroids. In case of poisoning, it is also requested that Bayer Corporation, Agriculture Division, Kansas City, Missouri, be notified. Telephone: 800/414-0244.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION
REQUIREMNTS . . . . . .: Goggles should be used when needed to prevent dust or spray mixture from getting into the eyes.

SKIN PROTECTION
REQUIREMENTS . . . . . .: Avoid skin contact. Use chemical-resistant gloves and additional protective clothing when needed to prevent dermal exposure.

RESPIRATOR REQUIREMENTS : Under normal handling conditions, no respiratory protection is needed. However, if needed to prevent respiratory irritation, a respirator approved by NIOSH for dusts and mists or for pesticides may be used.

VENTILATION REQUIREMENTS . . . . . .: Control airborne concentrations of DECATHLON 20 WP through the use of general and local exhaust ventilation where needed.

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 after use. Wash thoroughly after handling.

VIII.REACTIVITY DATA:

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

IX. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES . . . . . .: Isolate area. Avoid breathing dusts and skin contact. Use recommended protective equipment while carefully sweeping up and place in covered container for re-use if possible. Scrub contaminated area with soap and water. Repeat and rinse with water. Prevent contamination of streams, sewers, or other waterways.

WASTE DISPOSAL METHOD . .: Follow all federal, state and local regulations. Bury material in EPA-approved landfill, or burn in an incinerator approved for pesticide destruction. Do not reuse container.

X. SPECIAL PRECAUTIONS AND STORAGE DATA:

STORAGE TEMPERATURE (MIN/MAX) . . . . . .: None/30 day average not to exceed100 F

SHELF LIFE . . . . . .: Not noted

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.

XI. SHIPPING INFORMATION:

TECHNICAL SHIPPING NAME . .: Cyfluthrin

FREIGHT CLASS BULK . . . . . .: Insecticides, NOI - NMFC 102120

FREIGHT CLASS PACKAGE . . .: Insecticides, NOI - NMFC 102120

PRODUCT LABEL . . . . . .: Not noted

DOT (HM-181) (DOMESTIC SURFACE)

PROPER SHIPPING NAME . . . .: Not regulated

HAZARD CLASS OR DIVISION .: Non-regulated

IMO/IMDG CODE (OCEAN)

PROPER SHIPPING NAME . . . .: Not regulated

HAZARD CLASS DIVISION NUMBER . . . . . .: Non-regulated

ICAO/IATA (AIR)

PROPER SHIPPING NAME . . . .: Not regulated

HAZARD CLASS DIVISION NUMBER . . . . . .: Non-regulated

XII. ANIMAL TOXICITY DATA:

Only acute studies have been performed on this product as formulated. The non-acute information pertains to the active ingredient, cyfluthrin.

ACUTE TOXICITY

ORAL LD50 . . . . . .: Male Rat: 3084 mg/kg - Female Rat: 1733 mg/kg

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

INHALATION . . . . . .: 4 hr exposure to Dust: Male and Female Rat: >1.18 mg/l (analytical) - 1 hr exposure to Dust (extrapolated from 4 hr LC50): Male and Female Rat: >4.72 mg/l (analytical)

EYE EFFECTS . . . . . .: Rabbit: Mild irritation to the iris and conjuctiva was observed with all irritation resolving within 7 days.

SKIN EFFECTS . . . . . .: Rabbit: Slight dermal irritant.

SENSITIZATION . . . . . .: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY . . . . .: In a 3-week dermal toxicity study, the active ingredient, cyfluthrin, was administered at 50 or 250 mg/kg to the back of rabbits for 6 hours/day, 5 days/week. There were no local or systemic effects observed in the treated rabbits. The no-observed-effect-level (NOEL) was equal to or greater than 250 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/cubic meter for 6 hours/day, 5 days/week. The NOEL was 0.09 mg/cubic meter based on reduced body weight gains.

CHRONIC TOXICITY . . . . . .: Cyfluthrin was administered for 2 years to rats at dietary concentrations of 50, 150 or 450 ppm. Body weight gains were reduced at 150 ppm and greater. The NOEL was 50 ppm based on reduced body weight gains. Dogs were administered cyfluthrin for 1 year at dietary concentrations of 40, 160 or 640 ppm. At the high dose, there was an increase incidence of clinical-signs and a reduction of body weight gains. The NOEL was 160 ppm. Preliminary data are available on an ongoing dog study. Dogs were administered cyfluthrin at dietary concentrations of 50, 100, 360 or 500 ppm for 1 year. Mid-term neurological examinations revealed hind-limb motor disturbances at dose levels of 360 ppm and greater.

CARCINOGENICITY . . . . . .: Cyfluthrin was investigated for carcinogenicity in chronic studies using rats and mice at maximum levels of 450 and 800 ppm, respectively. There was no evidence of a carcinogenic potential observed 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 teratology 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. The in-life portion of the study has been completed and preliminary results indicate a marginal decrease in viable pup weights from birth through day 7 at 50 ppm. This is the only effect noted in pups at the low dose and occurred only in the F2a generation. The biological relevance of this equivocal finding awaits full completion of the study.

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.

XIII. FEDERAL 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 . . . . . .: No components listed.

SARA TITLE III:

SECTION 302 EXTREMEMLY HAZARDOUS SUBSTANCES: No components listed.

SECTION 311/312 HAZARD CATEGORIES . . . .: Immediate Health Hazard.

SECTION 313 TOXIC CHEMICALS . . . . . .: Cyfluthrin-CAS #68359-37-5 (20%)

RCRA STATUS . . . . . .: If discarded in its purchased form, this product would not be 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)

XIV. OTHER REGULATORY INFORMATION:

NFPA 704M RATINGS:	Health	Flammability	Reactivity	Other
	2	2	1	0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

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

XV. APPROVALS:

REASON FOR ISSUE: . . . . . .: Revise Sections II, V, XII and XIII.

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