MATERIAL SAFETY DATA SHEET

OLYMPIC HORTICULTURAL PRODUCTS, CO.
P.O. BOX 230, MAINLAND, PA 19451
800-659-6745

Approval Date: 02/13/97
Supersedes: None

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

MARATHON® 60 WP GREENHOUSE and NURSERY INSECTICIDE in WATER SOLUBLE PACKAGING

EPA Registration Number: 3125-492-59807

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME . . . . . Marathon 60 WP Greenhouse and Nursery Insecticide in Water Soluble Packaging
CHEMICAL FAMILY . . . . . Chloronicotinyl
CHEMICAL NAME . . . . . 1-{(6-chloro-3-pyridinyl)methyl}-*N*-nitro-2-imidazolidinimine
SYNONYMS . . . . . Imidacloprid; BAY NTN 33893
FORMULA . . . . . C9 H10 Cl N5 02
PRODUCT USE . . . . . Commercial Insecticide

2. COMPOSITION/INFORMATION ON INGREDIENTS:

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

*** * * HAZARDOUS INGREDIENTS * * ***

Imidacloprid
138261-41-3 OSHA: Not Established 60%
ACGIH: Not Established

Ingredient 1968
Specific chemical identity is witheld as a trade secret.
OSHA: Not Established . . . . . .3 - 5%
ACGIH: Not Established

Ingredient 1611
Specific chemical identity is withheld as a trade secret.
OSHA: Not Established . . . . . .10 - 20%
ACGIH: Not Established

Total crystalline silica (quartz)
14808-60-7 OSHA: .10 mg / m3 TWA (respirable) . . . . . .< 1%
ACGIH: .10 mg / m3 TWA (respirable)

Ingredient 1606
Specific chemical identity is witheld as a trade secret.
OSHA: 5.00 mg / m3 TWA (respirable) . .10 - 20%
ACGIH: 2.00 mg / m3 TWA (respirable)

3. HAZARDS INDENTIFICATION:

EMERGENCY OVERVIEW

CAUTION! Color: Off-white to light tan; Form: Powder; Odor: Mild, musty; Harmful if inhaled or ingested; Harmful if absorbed through skin; Causes eye irritation.

POTENTIAL HEALTH EFFECTS:
ROUTE (S) OF ENTRY . . . . . : Inhalation; Skin Contact; Skin Absorption

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE . . . . .: No specific symptoms of acute overexposure are known to occur in humans. Animal studies have shown that this material is mildly toxic by the oral and dermal routes. It is minimally irritating to the conjunctiva of the eye but the irritation is reversible within 24 hours. It is a slight dermal irritant, but is not a dermal sensitizer.
CHRONIC EFFECTS OF EXPOSURE . . . .: Based on animal studies, no adverse effects or symptoms would be expected from chronic exposure to the active ingredient in this product during normal use. This product may contain up to approximately 0.7% total crystalline silica. 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.
CARINOGENICITY . . . . . .: Marathon 60 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 group 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. However, pulmonary and respiratory diseases may be aggravated by exposure to respirable crystalline silica.

4. FIRST AID MEASURES:

FIRST AID FOR EYES . . . . . .: Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation persists or develops after flushing.
FIRST AID FOR SKIN . . . . . .: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. If signs of intoxication (poisoning) occur, get medical attention immediately.
FIRST AID FOR INHALATION . . . . . .: First, remove victim 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 (15mL) of syrup of ipecac followed by 1 to 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 . . . . . .: Treat symptomatically. In case of poisoning, it is also requested that Bayer Corp., Agriculture Division, Kansas City, Missouri, be notified. Telephone: 800-414-0244
ANTIDOTES . . . . . .: None

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5. FIRE FIGHTING MEASURES:

FLASH POINT . . . . . .: Not Applicable

FLAMMABLE LIMITS:

UPPER EXPLOSIVE LIMIT (UEL) (%) . . . .: Not Established

LOWER EXPLOSIVE LIMIT (LEL) (%) . . .: Not Established

EXTINGUISHING MEDIA . . . . . .: Water; Carbon Dioxide; Dry Chemical; Foam

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 run-off 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 dusts and skin contact. Avoid generating dust (a fine water spray mist, plastic film cover, or floor sweeping compound may be used if necessary). Use recommended protective equipment while carefully sweeping up spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. 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 removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE (MIN / MAX) . . . .: None / 30 day average not to exceed 100 F

SHELF LIFE . . . . . .: Not noted

SPECIAL SENSITIVITY . . . . . .: Not noted

HANDLING / STORAGE PRECAUTIONS . . . .: Store in a cool dry area designated specifically for pesticides. Do no store near any material intended for use or consumption by humans or animals.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS . . . . . .: Goggles should be used when needed to prevent dust from getting into the eyes.

SKIN PROTECTION REQUIREMENTS . . . . . .: Wear long sleeves and trousers to prevent skin contact.

HAND PROTECTION REQUIREMENTS . . . . . .: The use of chemical-resistant gloves to prevent skin contact is recommended as good practice.

VENTILATION REQUIREMENTS . . . . . .: Control exposure levels through the use of general and local exhaust ventilation where needed.

RESPIRATOR REQUIREMENTS . . . . . .: Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to product dust is excessive, wear a NIOSH-approved respirator for dusts and mists or for pesticides.

ADDITIONAL PROTECTIVE MEASURES . . . .: Clean water 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.

9. PHYSICAL AND CHEMICAL PROPERITES:

PHYSICAL FORM . . . . . .: Powder

COLOR . . . . . .: Off-white to light tan

ODOR . . . . . .: Mild, musty

MOLECULAR WEIGHT . . . . . .: 255.7 (for imidacloprid)

BOILING POINT . . . . . .: Not applicable

MELTING / FREEZING POINT . . . . . .: Melting: 120 - 134 C (for imidacloprid)

SOLUBILITY IN WATER . . . . . .: 500 ppm (for imidacloprid)

SPECIFIC GRAVITY . . . . . .: Not applicable

BULK DENSITY . . . . . .: 14 - 17 lbs / cu ft (fluffed)

VAPOR PRESSURE . . . . . .: 1.5 x 10 - 9 mm @ 20 C (for imidacloprid)

10. STABILITY AND REACTIVITY:

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

HAZARDOUS POLYMERIZATION . . . . . .: Will not occur.

INCOMPATIBILITIES . . . . . .: None known.

INSTABILITY CONDITIONS . . . . . .: Strong exothermal reaction above 200 C (for imidacloprid).

DECOMPOSITION PRODUCTS . . . . . .: Proposed: decomposition products under extreme conditions such as fire are: HCl, HCN, CO, NOx (for imidacloprid).

11. TOXICOLOGICAL INFORMATION:

Acute toxicology information provided below has been extrapolated from a similar formulation, containing a higher percentage of the active ingredient, imidacloprid. The non-acute information pertains to the technical-grade active ingredient.

ACUTE TOXICITY:

ORAL LD50 . . . . . .: Male Rat: 2591 mg / kg; Female Rat: 1858 mg / kg .

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

INHALATION LC50 . . . . . .: 4 Hr. Exposure to Liquid Aerosol: Male Rat: 2.65 mg / L (analytical); Female Rat: 2.75 mg / L (analytical) — 1 Hr. Exposure to Liquid Aerosol (extrapolated from 4 Hr. LC50): Male Rat: 10.6 mg / L (analytical); Female Rat: 11.0 mg / L (analytical).

EYE EFFECTS . . . . . .: Rabbit: Only minimal irritation to the conjunctiva was observed with all remarkable irritation resolving by 24 hours.

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

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

SUBCHRONIC TOXICITY . . . . . .: In a 3 week dermal toxicity study, rabbits were treated with the active ingredient, imidacloprid, at the limit dose level of 1000 mg / kg for 6 hours / day, 5 days / week. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg / kg. In a 4 week inhalation study, rats were exposed to dust concentrations of imidacloprid at 5.5, 30.5 and 191.2 mg / cubic meter for 6 hours / day, 5 days / week. Effects observed at the high concentration included decreased body weight gains, decreased heart and thymus weights, increased liver weights, and induction of the hepatic mixed-function oxidases. Histopathological examinations did not reveal any organ damage or local injury to the respiratory tract. The NOEL was 5.5 mg / cubic meter based on induction of the hepatic mixed-function oxidases.

CHRONIC TOXICITY . . . . . .: Dogs were administered imidacloprid for 1 year at dietary concentrations of 200, 500 or 1250 ppm. Due to the lack of significant effects, the high dose was increased to 2500 ppm at 17 weeks for the remainder of the study. Effects observed at the high dose included decreased food consumption, increased liver weights and elevated serum chemistries. The NOEL was 500 ppm. In chronic studies using rats, imidacloprid was administered for 2 years to rats at dietary concentrations of 100, 300, 900 or 1800 ppm. Histopathology examinations revealed an increased incidence of mineralization in the colloid of the thyroid follicles at concentrations of 300 ppm and greater. At 1800 ppm, there were changes in the serum chemistries and a slight increase in the incidence of parafollicular hyperplasia seen in the thyroids. Body weight gains were reduced at 900 and 1800 ppm. The overall NOEL was 100 ppm.

CARCINOGENICITY . . . . . .: Imidacloprid was investigated for carcinogenicity in chronic feeding studies using mice and rats at maximum levels of 2000 and 1800 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

MUTAGENICITY . . . . . .: The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

DEVELOPMENTAL TOXICITY . . . . . .: In a teratology study using rats, imidacloprid was administered by oral gavage during gestation at doses of 10, 30 or 100 mg / kg. At the maternally toxic dose of 100 mg / kg, skeletal examinations of the fetuses revealed a slight

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increase in the incidence of wavy ribs. The NOELs for maternal and developmental toxicity were 10 and 30 mg / kg, respectively. Teratogenic effects were not observed at any of the doses tested. Rabbits were administered imidacloprid during gestation at oral doses of 8, 24 or 72 mg / kg. At the maternally toxic dose of 72 mg / kg, reduced body weights and delayed skeletal ossification were observed in the fetuses. The NOELs for maternal and developmental toxicity were 8 and 24 mg / kg, respectively. Teratogenic effects were not observed at any of the doses tested.

REPRODUCTION . . . . . .: In a reproduction study, imidacloprid was administered to rats for 2 generations at dietary concentrations of 100, 250 or 700 ppm. Offspring at 700 ppm, exhibited reduced mean body weights and body weight gain. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

NEUROTOXICITY . . . . . .: In an acute neurotoxicity study using rats, imidacloprid was administered as a single oral dose at concentrations of 42, 151 or 307 mg / kg. Clinical observations and neurotoxicity evaluations were performed over a period of 15 days followed by a neurohistopathological examination. Deaths attributed to imidacloprid were observed at the high dose within a day of treatment. The NOEL for motor and locomotor activity was 42 mg / kg for males. Females at the low dose exhibited minimal decrease in activity in the figure-eight maze. In a subsequent study, the NOEL for motor and locomotor activity in females was 20 mg / kg. The NOEL for neurotoxicity was 307 mg / kg based on the absence of treatment-related microscopic lesions in skeletal muscle or neural tissue. In a 13 week neurotoxicity study, imidacloprid was administered to rats at dietary concentrations of 140, 963 or 3027 ppm. At the mid-and high dose, effects observed included reductions in body weight and feed consumption, and clinical chemistry findings. Neurobehavorial changes were observed only in males at the high dose. There were no correlative micropathologic findings in muscle or neural tissues in any animals at any treatment level. The NOEL for neurotoxicity was 3027 ppm. The overall NOEL was 140 ppm.

12. ECOLOGICAL INFORMATION:

ECOLOGICAL POSTNOTE . . . . . .: This compound has been thoroughly evaluated for ecological effects. Olympic 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 case of accidents involving environmental release of this material, please call Bayer's emergency number: 1-800-414-0244.

13. DISPOSAL CONSIDERATIONS:

WASTE DISPOSAL METHOD . . . . . .: Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container, except as authorized by Olympic Horticultural Products, Co.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME . . . . . .: Imidacloprid
FREIGHT CLASS BULK . . . . . .: Insecticides, NOI-NMFC 102120
FREIGHT CLASS PACKAGE . . . . . .: Insecticides, NOI-NMFC 102120
PRODUCT LABEL . . . .: Not noted

DOT (DOMESTIC SURFACE):
HAZARD CLASS OR DIVISION . . . . . .: Non-Regulated

IMO / IMDG CODE (OCEAN):
HAZARD CLASS DIVISION NUMBER . . .: Non-Regulated

ICAO / IATA (AIR):
HAZARD CLASS DIVISION NUMBER . . . .: Non-Regulated

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 . . . . . .: No components listed.

SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCE . . . . . .: None
SECTION 311 / 312
HAZARD CATEGORIES . . . . . .: Immediate Health Hazard
SECTION 313
TOXIC CHEMICALS . . . . . .: None
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
	1	1	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.

REASON FOR NEW ISSUE . . . . . .: Create new MSDS
APPROVAL DATE . . . . . .: 02 / 13 / 97
SUPERSEDES DATE . . . . . .: None
MSDS NUMBER . . . . . .: 26730

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