



BAYER CROP SCIENCE

P.O. Box 4913 Hawthorn Road
Kansas City, MO 64120-0013

TRANSPORTATION EMERGENCY

CALL CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

NON-TRANSPORTATION

BAYER EMERGENCY PHONE...: (800) 414-0244
BAYER INFORMATION PHONE.: (800) 842-8020

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: PREMISE 2 Insecticide
PRODUCT CODE.....: 216662
CHEMICAL FAMILY.....: Chloronicotinyl
CHEMICAL NAME.....: 1-((6-chloro-3-pyridinyl)methyl)-N-nitro-2-imidazolidinimine
SYNONYMS.....: Premise Pre-Construction; Imidacloprid; BAY NTN 33893
FORMULA.....: C9 H10 Cl N5 O2
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 22 %
ACGIH: Not Established

Ingredient 1979
Specific chemical identity is withheld as a trade secret.
OSHA : Not Established 1-3 %
ACGIH: Not Established

Ingredient 2035
Specific chemical identity is withheld as a trade secret.
OSHA : Not Established 1-3 %
ACGIH: Not Established

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3. HAZARDS IDENTIFICATION:  
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\* EMERGENCY OVERVIEW \*  
\* \*  
\* CAUTION! Color: Off-white to tan; Form: Viscous Liquid; \*  
\* Suspension; Odor: Mild, non-offensive; Harmful if absorbed \*  
\* through skin; Harmful if swallowed. \*  
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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 72 hours. It is not a dermal irritant or a dermal sensitizer.

CHRONIC EFFECTS OF EXPOSURE...: No specific symptoms of chronic overexposure are known to occur in humans.

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 this product.

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4. FIRST AID MEASURES:  
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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 (15 mL) of syrup of ipecac followed by 1 to 2 glasses of

4. FIRST AID MEASURES (Continued)

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 Corporation, Agriculture Division, Kansas City, Missouri, be notified. Telephone: 1-800/414-0244  
ANTIDOTES.....: None

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Greater than 200 F (93 C)

FLAMMABLE LIMITS:

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

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

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 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 material. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways or contact vegetation.

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

7. HANDLING AND STORAGE (Continued)

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 should be used to prevent liquid splashes 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 this product 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 PROPERTIES:

PHYSICAL FORM.....: Viscous Liquid; Suspension

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

ODOR.....: Mild, non-offensive

ODOR THRESHOLD.....: Not established

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

pH .....: 7.5

BOILING POINT.....: Not established

MELTING/FREEZING POINT....: Freezing: 20 F

VISCOSITY.....: 350-500 cps @ 25 C

SOLUBILITY IN WATER .....: 75% of mixture

SPECIFIC GRAVITY .....: 1.12

BULK DENSITY.....: Not applicable

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

VAPOR PRESSURE .....:  $1.5 \times 10^{-9}$  mm @ 20 C (for imidacloprid)

VAPOR DENSITY .....: Not established (Air = 1)

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10. STABILITY AND REACTIVITY:  
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STABILITY.....: This is a stable material.  
HAZARDOUS POLYMERIZATION...: Will not occur.  
INCOMPATIBILITIES.....: None known  
INSTABILITY CONDITIONS.....: Strong exothermal reaction above 200 C  
(imidacloprid)  
DECOMPOSITION PRODUCTS.....: Proposed: HCl, HCN, CO, NOx (for imidacloprid)

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11. TOXICOLOGICAL INFORMATION:  
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Only acute studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, Imidacloprid.

ACUTE TOXICITY

ORAL LD50.....: Male Rat: >4870 mg/kg; Female Rat: 4143 mg/kg  
DERMAL LD50.....: Male & Female Rabbit: >2000 mg/kg  
INHALATION LC50.....: 4 Hr. Exposure to Liquid Aerosol: Male and Female Rat:  
>5.33 mg/l (analytical) -- 1Hr. Exposure to Liquid Aerosol (extrapolated from  
4 Hr. LC50): Male and Female Rat: >20 mg/l (analytical)  
EYE EFFECTS.....: Rabbit: Only minimal irritation to the conjunctiva was  
observed with all irritation resolving within 72 hours.  
SKIN EFFECTS.....: Rabbit: Not a 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 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

11. TOXICOLOGICAL INFORMATION (Continued)

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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 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 gains. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

NEUROTOXICITY .....: In an acute oral neurotoxicity study using rats, imidacloprid was administered as a single 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. Neurobehavioral 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.

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12. ECOLOGICAL INFORMATION:  
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This product is highly toxic to 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 1-800/414-0244

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13. DISPOSAL CONSIDERATIONS  
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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.

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14. TRANSPORTATION INFORMATION:  
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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)  
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PROPER SHIPPING NAME.....: Not hazardous or regulated  
HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)  
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PROPER SHIPPING NAME.....: Not hazardous or regulated  
HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)  
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PROPER SHIPPING NAME.....: Not hazardous or regulated  
HAZARD CLASS DIVISION NUMBER...: Non-Regulated

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15. REGULATORY INFORMATION:  
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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 SUBSTANCES...: 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)

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16. OTHER INFORMATION:  
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NFPA 704M RATINGS:      Health      Flammability      Reactivity      Other  
                                 1                                   1                                   1                                   0  
                                 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.....: Add Product Code; revise to ANSI format  
PREPARED BY.....: V. C. Standart  
APPROVED BY.....: D. C. Eberhart  
TITLE.....: Director Product Safety & Stewardship  
APPROVAL DATE.....: 11/04/1997  
SUPERSEDES DATE.....: 05/06/1997  
MSDS NUMBER.....: 16608

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Product Code: 216662  
Approval date: 11/04/1997

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