

Material Safety Data Sheet

ASTRO® INSECTICIDE

MSDS #: 1547-A
Revision Date: 2013-09-30
Version 0.02



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200
And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	ASTRO® INSECTICIDE
Formula code	1547-A
Active Ingredient(s)	Permethrin
Synonyms	FMC 33297; 3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate; (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
Chemical Family	Pyrethroid Pesticide
Recommended use:	Insecticide
<u>Manufacturer</u>	<u>Emergency telephone number</u>
FMC Corporation Agricultural Products Group 1735 Market Street Philadelphia, PA 19103 General Information: Phone: (215) 299-6000 E-Mail: msdsinfo@fmc.com	Medical Emergencies: 1 800 / 331-3148 (PROSAR - U.S.A. & Canada) 1 651 / 632-6793 (PROSAR - All Other Countries - Collect) For leak, fire, spill or accident emergencies, call: 1 800 / 424 9300 (CHEMTREC - U.S.A.) 1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

<u>Appearance</u>	amber liquid
<u>Physical state</u>	Liquid
<u>Odor</u>	Faint hydrocarbon
<u>Physical or Chemical Hazards</u>	
Flammable properties	Combustible liquid
<u>Potential health effects</u>	
Acute effects	
Eyes	May cause slight irritation.
Skin	Irritating to skin.

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system. May cause drowsiness and dizziness.
Ingestion	Harmful if swallowed. Potential for aspiration if swallowed. May cause drowsiness and dizziness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic effects	May cause adverse kidney effects. May cause adverse liver effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical Name	CAS-No	Weight %
Permethrin	52645-53-1	36.8
1,1'-Biphenyl, bis(1-methylethyl)-	69009-90-1	20-30
Petroleum distillates, hydrotreated light	64742-47-8	10-20

4. FIRST AID MEASURES

Eye contact	Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further 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.
Inhalation	Move person to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) 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.
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 induce vomiting or give anything by mouth to an unconscious person.
Notes to physician	Contains petroleum distillate. Vomiting may cause aspiration pneumonia. This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

5. FIRE-FIGHTING MEASURES

<u>Flammable properties</u>	Combustible liquid
Flash Point	66-68 °C / 151-154 °F
Method	Tag Closed Cup
Sensitivity to Mechanical Impact	Not applicable
Sensitivity to Static Discharge	Not applicable
Suitable extinguishing media	Foam. Carbon dioxide (CO ₂). Dry chemical. Water spray or fog.
Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.

NFPA

Health Hazard	0
Flammability	1

Stability 0
Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
Environmental precautions	Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.
Methods for cleaning up	Sweep up and shovel into suitable containers for disposal. Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.
Other	For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. HANDLING AND STORAGE

Handling	Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.
Storage	Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container only.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure guidelines

Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Petroleum distillates, hydrotreated light 64742-47-8	TWA: 200 mg/m ³ Skin			

Occupational exposure controls

Engineering measures	Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.
Personal Protective Equipment	
General Information	If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.
Respiratory protection	For dust, splash, mist or spray exposures wear full-face elastomeric half mask respirator with appropriate cartridges and/or filters, which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization).
Eye/face protection	For dust, splash, mist or spray exposure, wear chemical protective goggles or a face-shield
Skin and body protection	Wear long-sleeved shirt, long pants, socks, shoes, and gloves.
Hand protection	Protective gloves

Hygiene measures

Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	amber liquid
Color	amber
Physical state	Liquid
Odor	Faint hydrocarbon
pH	4 @ 25 °C (5% solution)
Melting Point/Range	No information available.
Freezing point	No information available.
Boiling Point/Range	Not applicable
Flash Point	66-68 - 68 °C / 151-154 154 °F Tag Closed Cup
Evaporation rate	Not applicable
Flammable properties	Combustible liquid
Vapor pressure	No information available.
Vapor density	No information available.
Density	8.61 lb/gal
Specific Gravity	1.033 @ 201 °C
Water solubility	Emulsifies
Percent volatile	No information available.
Partition coefficient:	Not applicable
Viscosity	No information available.

10. STABILITY AND REACTIVITY

Stability	Stable.
Conditions to avoid	Excessive heat, Extreme risk of explosion by shock, friction, fire or other sources of ignition
Hazardous decomposition products	Chlorine, Hydrogen chloride, Carbon oxides, Aldehydes.
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute effects

Eye contact	May cause slight irritation
Skin contact	Irritating to skin
Ingestion	Large toxic doses of the formulated product, administered to laboratory animals, have produced central nervous system effects with symptoms that include hypersensitivity to touch and sound, tremors, and clonic convulsions. Vomiting after ingestion of this product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema.
Inhalation	In animals overexposure has produced symptoms such as squinting eyes, irregular and rattling breathing, and ataxia. Inhalation of hydrocarbon vapors may cause headaches, dizziness, disturbances in vision, drowsiness, respiratory irritation, anesthesia, unconsciousness, and other central nervous system effects.
LD50 Dermal	> 2,000 mg/kg (rabbit)
LD50 Oral	998 mg/kg (Rat)
LC50 Inhalation:	> 4.3 mg/L 4 hr (Rat)
Sensitization	May cause sensitization of susceptible persons.

Chronic effects

Chronic Toxicity	May cause adverse kidney effects. May cause adverse liver effects.
Carcinogenicity	Not recognized as carcinogenic by Research Agencies (IARC, NTP, OSHA, ACGIH).
Mutagenicity	Permethrin: Did not show mutagenic effects in animal experiments.
Reproductive toxicity	Permethrin: No toxicity to reproduction.
Neurological Effects	Permethrin: Clinical signs of neurotoxicity include altered motor activity and FOB effects, with no signs of histopathology
Developmental Toxicity	Permethrin: Not teratogenic in animal studies
Target Organ Effects	Permethrin: Long-term feeding studies in animals resulted in increased liver and kidney weights, induction of the liver microsomal drug metabolizing enzyme system and histopathological changes in the lungs and liver.
<u>Chronic Toxicity - Other Ingredient(s)</u>	Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Permethrin (52645-53-1)				
Active Ingredient(s)	Duration	Species	Value	Units:
Permethrin	LC50	aquatic arthropods	0.02 - 7.6	µg/L
	LC50	Fish	0.05 - 315	µg/L
	LD50 Oral	Bobwhite quail	>5200	mg/kg
	LD50 Oral	Mallard duck	>5200	mg/kg
	LD50	Bee	0.026 - 0.17	µg/bee

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Permethrin		LC50 0.008 - 0.03 mg/L Pimephales promelas 96 h LC50 0.001 - 0.009 mg/L Pimephales promelas 96 h LC50= 0.015 mg/L Cyprinus carpio 96 h LC50 0.0052 - 0.0077 mg/L Cyprinus carpio 96 h LC50= 0.00079 mg/L Lepomis macrochirus 96 h LC50= 0.0108 mg/L Lepomis macrochirus 96 h LC50 0.00188 - 0.00336 mg/L Lepomis macrochirus 96 h LC50 0.00049 - 0.00097 mg/L Oncorhynchus mykiss 96 h LC50 0.0017 - 0.0048 mg/L Oncorhynchus mykiss 96 h		
Petroleum distillates, hydrotreated light		LC50= 45 mg/L Pimephales promelas 96 h LC50= 2.2 mg/L Lepomis macrochirus 96 h LC50= 2.4 mg/L Oncorhynchus mykiss 96 h		LC50 = 4720 mg/L 96 h

Environmental Fate

Permethrin (52645-53-1)		
Active Ingredient(s)	Type of Test	Result
Permethrin	Bioconcentration factor (BCF) Bluefill sunfish (Lepomis macrochirus)	535
	Half-life in soil	~30 days
	log Pow	6.1
	Mobility in soil	Not expected to reach groundwater
	Stability in water	Stable to hydrolysis over a wide range of pH values.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated packaging Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. TRANSPORT INFORMATION

DOT Not regulated for transportation if shipped in Non Bulk packaging. The classification below pertains to the shipment in Bulk packaging.

Packaging Type Bulk
Proper shipping name Combustible liquid, n.o.s.
UN/ID No NA1993
Hazard Class Combustible
Packing group III
Description NA1993, Combustible liquid, n.o.s. (Aromatic hydrocarbons), III

TDG The "Marine Pollutant" marking is only applicable when shipped by vessel or air, and is not applicable when shipped only by road or rail in Canada.

UN/ID No UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing group III
Marine pollutant Permethrin.
Description UN3082, Environmentally hazardous substance liquid n.o.s. (Permethrin), 9, III

ICAO/IATA

UN/ID No UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing group III
Marine pollutant Permethrin
Description UN3082, Environmentally hazardous substance liquid n.o.s. (Permethrin), 9, III
Limited quantity 914 / 450 L

IMDG/IMO

UN/ID No UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing group III

Marine pollutant Permethrin
Description UN3082, Environmentally hazardous substance liquid n.o.s. (Permethrin), 9, III

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Permethrin	52645-53-1	38.85	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard yes
Chronic Health Hazard yes
Fire Hazard yes
Sudden Release of Pressure Hazard no
Reactive Hazard no

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances
1,1'-Biphenyl, bis(1-methylethyl)-	06/28/1984

International Regulations

Mexico - Grade

No information available.

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D2B Toxic materials



16. OTHER INFORMATION

Revision Date: 2013-09-30
Reason for revision: No information available.

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Prepared By

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End of Material Safety Data Sheet