

**SAFETY DATA SHEET**  
**ASTRO® INSECTICIDE**

**SDS # :** 1784-1-A  
**Revision date:** 2016-05-26  
**Format:** NA  
**Version** 1.02



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

**Product Name** ASTRO® INSECTICIDE

**Other means of identification**

**Product Code(s)** 1784-1-A

**Synonyms** PERMETHRIN (FMC 33297): 3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate or 3-phenoxybenzyl (1RS)-cis-trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate (IUPAC name); (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (CAS name)

**Active Ingredient(s)** Permethrin

**Chemical Family** Pyrethroid Pesticide

**Alternate Commercial Name** Dagnet FT

**Recommended use of the chemical and restrictions on use**

**Recommended Use:** Insecticide

**Restrictions on Use:** Use as recommended by the label

**Manufacturer Address**

FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (E-Mail General Information)

**Emergency telephone number**

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**

**Classification**

**OSHA Regulatory Status**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4


Skin sensitization	Category 1B
Specific target organ toxicity (single exposure)	Category 2
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1

**GHS Label elements, including precautionary statements**

**EMERGENCY OVERVIEW**

**Danger**

**Hazard Statements**  
 H302 - Harmful if swallowed  
 H304 - May be fatal if swallowed and enters airways  
 H317 - May cause an allergic skin reaction  
 H332 - Harmful if inhaled  
 H371 - May cause damage to organs  
 H373 - May cause damage to organs through prolonged or repeated exposure



**Precautionary Statements - Prevention**

- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P280 - Wear protective gloves
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements - Response**

- P321 - Specific treatment (see .? on this label)
- P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor
- P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P363 - Wash contaminated clothing before reuse
- P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P312 - Call a POISON CENTER or doctor if you feel unwell
- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
- P331 - Do NOT induce vomiting
- P330 - Rinse mouth

**Precautionary Statements - Storage**

- P405 - Store locked up

**Precautionary Statements - Disposal**

- P501 - Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

No hazards not otherwise classified were identified.

**Other Information**

Very toxic to aquatic life with long lasting effects. Causes mild skin irritation. May be harmful in contact with skin.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Chemical Family** Pyrethroid Pesticide.

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

Synonyms are provided in Section 1.

**4. FIRST AID MEASURES**

<b>Eye Contact</b>	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.
<b>Skin Contact</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.
<b>Inhalation</b>	Move to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>Ingestion</b>	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.
<b>Most important symptoms and effects, both acute and delayed</b>	Central nervous system effects.
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	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. Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

**5. FIRE-FIGHTING MEASURES**

<b>Suitable Extinguishing Media</b>	Foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water spray or fog.
<b>Specific Hazards Arising from the Chemical</b>	Combustible liquid
<b>Explosion data</b>	
<b>Sensitivity to Mechanical Impact</b>	Not sensitive.
<b>Sensitivity to Static Discharge</b>	Not sensitive.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions</b>	Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
<b>Other</b>	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
<b>Environmental Precautions</b>	See Section 12 for additional Ecological Information.
<b>Methods for Containment</b>	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

**Methods for cleaning up** 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.

**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. Keep/store only in original container.

**Incompatible products** None known

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Petroleum distillates, hydrotreated light (64742-47-8)	TWA: 200 mg/m <sup>3</sup> Skin	-	-	-

Appropriate engineering 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.

Individual protection measures, such as personal protective equipment

**Eye/Face Protection** If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

**Skin and Body Protection** Wear long-sleeved shirt, long pants, socks, and shoes.

**Hand Protection** Protective gloves

**Respiratory Protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

**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.

**General information** If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

**Appearance** Amber Liquid  
**Physical State** Liquid  
**Color** Amber  
**Odor** Faint hydrocarbon

Odor threshold	No information available
pH	3.75
Melting point/freezing point	Not applicable
Boiling Point/Range	No information available
Flash point	82.2 °C / 179.96 °F Tag Closed Cup
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	No information available
Vapor density	No information available
Density	8.61 lb/gal
Specific gravity	1.033 @ 20 °C
Water solubility	Emulsifies
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	No information available

## 10. STABILITY AND REACTIVITY

Reactivity	None under normal use conditions
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Excessive heat, Extreme risk of explosion by shock, friction, fire or other sources of ignition
Incompatible materials	None known.
Hazardous Decomposition Products	Chlorine, Hydrogen chloride, Carbon oxides (COx), Aldehydes.

## 11. TOXICOLOGICAL INFORMATION

### Product Information

LD50 Oral	998 mg/kg (rat)
LD50 Dermal	> 2002 2,000 mg/kg (rabbit)
LC50 Inhalation	> 4.3 mg/L 4 hr (rat)
Serious eye damage/eye irritation	Mildly irritating.
Skin corrosion/irritation	Moderately irritating.
Sensitization	Sensitizer

### Information on toxicological effects

Symptoms	Large toxic doses of the formulated product, administered by ingestion to animals, produced central nervous system effects with symptoms that include hypersensitivity to touch and sound, tremors, and clonic convulsions. Overexposure via inhalation produced symptoms such as squinting eyes, irregular and rattling breathing, and ataxia.
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### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity	Effects are expected to be similar to those that are seen with acute toxicity.
Mutagenicity	Permethrin: Not genotoxic in laboratory studies.
Carcinogenicity	Permethrin: Evidence of tumors in mice but is not considered relevant to humans.

**Neurological effects** Permethrin: Clinical signs of neurotoxicity include altered motor activity and FOB effects, with no signs of histopathology.

**Reproductive toxicity** Permethrin: No toxicity to reproduction in animal studies.

**Developmental toxicity** Permethrin: Not teratogenic in animal studies.

**STOT - single exposure** May cause damage to organs. See listed target organs below.

**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure. See listed target organs below.

**Target organ effects** Permethrin: Central Nervous System (CNS).

**Neurological effects** Permethrin: Clinical signs of neurotoxicity include altered motor activity and FOB effects, with no signs of histopathology.

**Aspiration hazard** Potential for aspiration if swallowed.

Chemical name	ACGIH	IARC	NTP	OSHA
Permethrin 52645-53-1		Group 3		

IARC (International Agency for Research on Cancer)  
 Group 3 - Not classifiable as to its carcinogenicity to humans

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Permethrin (52645-53-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Permethrin	48 h EC50	Crustacea	0.001	mg/L
	72 h EC50	Algae	0.0125	mg/L
	96 h LC50	Fish	0.79	µg/L
	21 d NOEC	Crustacea	0.039	µg/L
	96 hr NOEC	Algae	0.9	µg/L
	21 d NOEC	Fish	0.3	µg/L

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Glycerol triacetate 102-76-1		48 h LC50: = 170 mg/L (Leuciscus idus) static	48 h EC50: = 380 mg/L (Daphnia magna)
Petroleum distillates, hydrotreated light 64742-47-8		96 h LC50: = 2.2 mg/L (Lepomis macrochirus) static 96 h LC50: = 2.4 mg/L (Oncorhynchus mykiss) static 96 h LC50: = 45 mg/L (Pimephales promelas) flow-through	96 h LC50: = 4720 mg/L (Den-dronereides heteropoda)
2-methylpropan-1-ol 78-83-1	48 h EC50: = 230 mg/L (Desmodesmus subspicatus)	96 h LC50: 1120 - 1520 mg/L (Oncorhynchus mykiss) flow-through 96 h LC50: 1370 - 1670 mg/L (Pimephales promelas) flow-through 96 h LC50: 1480 - 1730 mg/L (Lepomis macrochirus) flow-through 96 h LC50: = 375 mg/L (Pimephales promelas) static	48 h EC50: 1070 - 1933 mg/L (Daphnia magna) Static 48 h EC50: = 1300 mg/L (Daphnia magna)

**Persistence and degradability** Permethrin: Moderately persistent. Does not readily hydrolyze. Not readily biodegradable.

**Bioaccumulation** Permethrin: The substance has a potential for bioconcentration.

**Mobility** Permethrin: Immobile; Not expected to reach groundwater.

**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.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
2-methylpropan-1-ol 78-83-1	U140	Included in waste streams: F005, F039		Ignitable waste, Toxic waste

**14. TRANSPORT INFORMATION**

**DOT** The classification below pertains to the shipment in bulk and non-bulk packaging:

**UN/ID no** NA1993  
**Proper Shipping Name** Combustible liquid, n.o.s  
**Hazard class** Combustible  
**Packing Group** III  
**Description** NA1993, Combustible liquid, n.o.s. (Aromatic hydrocarbons), III

**TDG** Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

**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, PGIII, Marine Pollutant

**ICAO/IATA**

**UN/ID no** UN3082  
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s.  
**Hazard class** 9  
**Packing Group** III  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (permethrin), 9, PGIII, Marine Pollutant

**IMDG/IMO**

**UN/ID no** UN3082  
**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s.  
**Hazard class** 9  
**Packing Group** III  
**EmS No.** F-A, S-F  
**Marine Pollutant** Permethrin  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (permethrin), 9, PGIII, Marine Pollutant

**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	52645-53-1	36.8	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

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
2-methylpropan-1-ol 78-83-1	5000 lb 2270 kg	

*FIFRA Information*

*This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:*

**CAUTION**

*Harmful if swallowed. Harmful if absorbed through the skin. Prolonged or frequent skin contact may cause allergic reactions in some individuals.*

*This product is extremely toxic to fish and aquatic invertebrates.*

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Permethrin 52645-53-1	X	X	

**International Inventories**

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Permethrin 52645-53-1			X	X	X	X	X	X
Petroleum distillates, hydrotreated light 64742-47-8	X	X	X		X	X	X	X
1,1'-Biphenyl, bis(1-methylethyl)- 69009-90-1	X	X	X	X	X			

**Mexico - Grade**

Moderate risk, Grade 2

**WHMIS Hazard Class**

D2B - Toxic materials





**16. OTHER INFORMATION**

NFPA	Health Hazards 2	Flammability 2	Instability 0	Special Hazards -
HMIS	Health Hazards 2*	Flammability 2	Physical hazard 0	Personal Protection X

NFPA/HMIS Ratings Legend \* - Chronic hazard

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 Reason for revision: Format Change

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**End of Safety Data Sheet**