
MATERIAL SAFETY DATA SHEET

LG International (America), Inc.
910 Sylvan Avenue
Engelwood Cliffs, New Jersey 07632

Emergency Response Telephone Numbers
For Spills Call: 1-(800)-424-9300
Other Emergencies Call: 1-(201)-816-2300

I. Material Identification

Product Name: **PERMASTAR AG Agricultural Insecticide** EPA Reg. No: 71532-15-73006

INGREDIENTS:

(% w/w)

Permethrin (CAS Reg. No. 52645-53-1) (3-phenoxyphenyl) methyl (\pm) <i>cis</i> , <i>trans</i> -3-(2,2-dichloroethenyl) -2,2-dimethylcyclopropane carboxylate ¹	38.0%
Inert Ingredients ²	62.0%

¹ *cis/trans* ratio: minimum 35% (\pm) *cis* and maximum 65% *trans*

² Aromatic petroleum solvent (CAS No. 70693-06-0) and proprietary emulsifier.

Chemical Class: Synthetic Pyrethroid Insecticide

EPA Signal Word: Caution

II. Hazardous Ingredients

MATERIAL:

OSHA PEL

ACGIH TLV

Active Ingredient: Permethrin	Not established	Not established
Inert Ingredients: Trade Secret	Not established	Not established

III. Health Hazard Data

EYE: Slightly irritating to eyes, but does not cause injury to eye tissue.

SKIN CONTACT: Moderately irritating to skin. In rare instances, exposure to this product may cause numbing, burning and tingling sensations. These effects are reversible and usually subside within 12 hours.

SKIN ABSORPTION: The acute dermal toxicity is considered to be low. The dermal LD₅₀ for rabbits is greater than 2000 mg/kg.

INGESTION: The acute oral toxicity is considered to be low. The oral LD₅₀ for rats is 998 mg/kg. Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. If aspirated (liquid enters the lungs), may cause lung damage or even death due to chemical pneumonia.

INHALATION: The acute inhalation toxicity is considered to be low. The inhalation LC₅₀ for rats is greater than 4.30 mg/l for 4 hours. Symptoms of excessive exposure includes squinting eyes, irregular and rattled breathing, ataxia, headache, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may produce effects on the nervous system such as sensitivity to touch and sound, tremors, abnormal movement, and clonic convulsions. Long-term studies with permethrin in laboratory animal resulted in increased liver and kidney weights, induction of the liver microsomal drug metabolizing enzyme system, and histopathological changes in the lungs and liver.

CANCER INFORMATION: Chronic feeding studies with permethrin in mice and rats indicate limited evidence of oncogenicity in laboratory animals. Based on comprehensive evaluations of all relevant health effects data, it was concluded that the oncogenic potential in humans is extremely weak or nonexistent.

TERATOLOGY (BIRTH DEFECTS): Did not cause birth defects in animal studies. Exposures having no effect on the mothers had no effect on the fetuses. The no effect levels in rabbits and rats were 600 mg/kg and 50 mg/kg, respectively.

REPRODUCTIVE EFFECTS: Permethrin did not interfere with fertility in animal reproduction studies. The no effect level in a two-generation rat reproduction study was 180 mg/kg.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Based on a number of *in vivo* and *in vitro* studies, it was concluded that permethrin is not a mutagen.

IV. First Aid Procedures

EYES: Hold eyelids open and flush with a steady gentle stream of water for 15 minutes. Get medical attention if irritation persists.

SKIN: Wash with a mild soap and rinse with plenty of water. Get medical attention if irritation persists.

INGESTION: Call a physician or Poison Control Center immediately. Do not induce vomiting as it may cause aspiration pneumonia. Contains an aromatic petroleum solvent. Dilute the ingested material by giving the victim one or two glasses of water. Do not give anything by mouth to an unconscious person.

INHALATION: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention if symptoms persist.

NOTE TO PHYSICIAN: This product has low oral, dermal, and inhalation toxicity. It is moderately irritating to the skin and is minimally irritating to the eyes. Reversible skin sensations (paresthesia) may occur and skin salves have been found useful in reducing discomfort. Contains an aromatic petroleum solvent that can produce a severe pneumonitis or fatal pulmonary edema if aspirated during vomiting. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

V. Physical Hazard Information

CHEMICAL & PHYSICAL PROPERTIES:

Color:	Light Amber
Physical State:	Liquid
Odor:	Mild petroleum odor
Density:	8.43 lbs/gal (1.01 gm/cm ³)
Solubility:	Dispersible in water
Viscosity:	80 cps @ 30 rpm
pH:	4.5 in an aqueous solution
Stability:	Stable

FIRE AND EXPLOSION HAZARDS:

Flash Point:	150° F (66° C)
Method Used:	TCC
Extinguishing Media:	Foam, CO ₂ , or dry chemical is preferred. Soft stream water fog only if necessary
Fire & Explosion Precautions:	Foam fire-extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not allow fire fighting water to escape into waterways or sewers. Toxic irritating gases can be formed.
Fire-Fighting Equipment:	Use positive-pressure self-contained breathing apparatus and full protective equipment.

REACTIVITY:

Stability:	(CONDITIONS TO AVOID) Avoid heating above 150° F (66° C). Contains a petroleum derivative solvent which will burn. This product is volatile and may produce vapors which can ignite or explode.
Incompatibility:	(SPECIFIC MATERIALS TO AVOID) None known.

Hazardous Decomposition: Under fire conditions, chlorine, hydrogen chloride, carbon dioxide, carbon monoxide, and aldehydes can be formed.

Hazardous Polymerization: Will not occur.

VI. Environmental Protection

IN CASE OF SPILLS OR LEAKS: Wear protective clothing as described in Section VII (Personal Protection and Precautions) of this MSDS. Absorb liquid with material such as clay, sand, sawdust, or dirt. Sweep up and place in a suitable container for disposal and label the contents. Area can be washed down with a suitable solution of bleach or soda ash and an appropriate alcohol (methanol, ethanol, or isopropanol). Follow this by washing with a strong soap and water solution. Absorb any excess liquid as indicated above, and add to the disposal container. Keep product, contaminated materials and wash water out of streams and sewers. Wash exposed body areas thoroughly after handling.

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or cleaning of equipment. Wastes resulting from the use of this product may be disposed of on site, if approved waste handling facilities are available, or at an approved waste handling facility.

PHYSICAL ENVIRONMENTAL PROPERTIES: In soil, permethrin is stable over a wide range of pH values. When applied at agricultural use rates, permethrin has a moderate rate of degradation in soil. At termiticidal use rates, permethrin is degraded at a slower rate, which is governed by soil characteristics. Due to its high affinity for organic matter, ($K_{oc} = 86,000$), there is little potential for movement in soil or entry into ground water. Permethrin has a Log P_{OW} of 6.1, but a low potential to bioconcentrate ($BCF = 500$) due to the ease with which it is metabolized.

ENVIRONMENTAL TOXICOLOGY: Permethrin is highly toxic to fish ($LC_{50} = 0.5 \mu\text{g/L}$ to $315 \mu\text{g/L}$) and aquatic arthropods ($LC_{50} = 0.02 \mu\text{g/L}$ to $7.6 \mu\text{g/L}$). Marine species are often more sensitive than the freshwater species. Bacteria, algae, mollusks, and amphibians are much more tolerant of permethrin than the fish and arthropods. Care should be taken to avoid contamination of the aquatic environment. Permethrin is slightly toxic to birds and oral LD_{50} values are greater than $3,600 \text{ mg/kg}$. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effect on bird reproduction.

VII. Personal Protection and Precautions

EXPOSURE GUIDELINE(S):

Permethrin	None established.
Aromatic petroleum solvent	None established. Supplier recommends a guideline of 100 ppm total hydrocarbon based on composition.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline. Ventilate all transport vehicles prior to unloading.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if the exposure guideline is exceeded, use an air-purifying respirator approved for pesticides (U.S. NIOSH/MSHA, EU CEN, or comparable certification organization).

EYE/FACE PROTECTION: Use chemical protective goggles or a face shield.

SKIN PROTECTION: Wear coveralls or long-sleeved shirt and long pants, chemical protective gloves (nitrile, neoprene, or Viton[®] brand), head covering and shoes plus socks. For increased exposures, wear a full body cover barrier suit, such as a PVC rain suit. Contaminated leather articles, such as shoes, belts, and watchbands, should be removed and destroyed. Launder all work clothing before reuse. Keep work clothing separated from household laundry.

SPECIAL PRECAUTIONS FOR HANDLING AND STORAGE: See product label. Harmful if swallowed, inhaled, or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating or smoking. Avoid breathing dust vapor, or spray mist. Store in a cool, dry place and away from heat. Keep out of reach of children and animals. Keep away from food, feedstuffs, and water supplies.

VIII. DOT Hazardous Materials Information

PROPER SHIPPING NAME: This product is not regulated by the DOT in non-bulk packaging.

FREIGHT CLASS: Insecticide, N.O.I., (Permethrin), Other than Poison
(NMFC Item 102120, Class 60)

HAZARD CLASS OR DIVISION: None

IDENTIFICATION NUMBER: None

PACKING GROUP: None

ADDITIONAL INFORMATION: For water, air, or bulk shipments, use the following description: Environmentally Hazardous Substance, Liquid, N.O.S. (Permethrin 38.0%), Class 9, UN 3082, PG III, Marine Pollutant.

IX. Regulatory Information

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Permethrin	52645-53-1	38%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA “Hazard Categories” promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	1
Flammability	2
Reactivity	0

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Category:

Chemical Name	CAS Number	RQ	% in Product
Permethrin	52645-53-1	not listed	38.0%

Issue Date: April 26, 2007

Revision Date:

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not “Hazardous” per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer’s responsibility to ensure that its activities comply with federal, state, and local laws and regulations. See MSDS for health and safety information.