



Material Safety Data Sheet

Permanone® Eighty Concentrate

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, and storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Permanone® Eighty Concentrate
MSDS IDENTIFICATION NO.: ENV-0161
CHEMICAL NAME: Mixture: permethrin
EPA REGISTRATION NUMBER: 73049-393
PRODUCT DESCRIPTION: For formulation into insecticides only.

Permanone is a registered trademark of Bayer AG.

MANUFACTURER

Valent BioSciences Corporation
870 Technology Way
Libertyville, IL 60048

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY OR SPILL (24 hr):
Within the United States: (877) 315-9819
Outside the United States: (651) 632-6184

PRODUCT INFORMATION

ENVIRONMENTAL SCIENCE PRODUCTS:
(866) 822-3731
www.valentbiosciences.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight/ Percent	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	80	None	None	See regulated exposure limits
Light Aromatic Petroleum Solvent (64742-95-6)	> 20	None	None	100 mg/m ³ TWA
Including: 1,2,4-Trimethylbenzene (95-63-6)	~ 5	25 ppm TWA	None	See regulated exposure limits

* Active Ingredient

Emergency Telephone: In US (877) 315-9819; Outside US (651) 632-6184
REVISION NUMBER: 2

MSDS NO.: ENV-0161
REVISION DATE: 08/07/2007

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

A VISCOUS BROWN LIQUID WITH AN AROMATIC ODOR

- CAUTION**
- Harmful if swallowed or absorbed through skin.
 - Causes moderate eye irritation.
 - Extremely toxic to fish and aquatic organisms.
 - Avoid contact with eyes, skin and clothing.
 - Do not use or store near heat or open flame.
 - Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure): Inhalation, ingestion, eye and skin contact.

Signs and Symptoms of Systemic Effects: Large toxic doses administered to laboratory animals have produced central nervous system effects with symptoms that include diarrhea, salivation, bloody nose, tremors and intermittent convulsions. Overexposure to permethrin via inhalation also produced hyperactivity and hypersensitivity.

Acute Eye Contact: This product can cause brief and/or minor eye irritation. The expected adverse health effects resulting from an exposure may include redness and possible swelling.

Acute Skin Contact: This product can cause brief and/or minor irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling. This product is slightly toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

This product contains a pyrethroid. Skin contact with pyrethroids can result in a temporary burning, tingling or itching sensation.

Acute Ingestion: This product is slightly toxic when ingested. Ingestion may present an aspiration hazard. Ingestion may also cause nausea, vomiting and diarrhea. This product contains petroleum naphtha which may cause kidney damage. Ingestion of this product may cause gastrointestinal irritation.

Acute Inhalation: This product is minimally toxic when inhaled. Exposure to high concentrations in the air may result in respiratory irritation. Signs and symptoms may include, but not be limited to, nasal discharge, sore throat, coughing and difficulty in breathing.

Chronic Toxicity (including cancer): This product is not listed as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA) or ACGIH.

Potentially Aggravated Medical Conditions: None known

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. For Regulatory Information, refer to Section 15.

4. FIRST AID MEASURES

**EMERGENCY NUMBER: within the United States (877) 315-9819;
outside the United States (651) 632-6184**

EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for 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.

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 give anything by mouth to an unconscious person.

INHALATION:

Move person to fresh air. If person is not breathing, call 911 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.

NOTES TO PHYSICIAN:

This product contains a pyrethroid. If a small amount is ingested (or if treatment is delayed) oral administration of large amounts of activated charcoal and a cathartic is probably sufficient therapy. Do not administer milk, cream or other substance containing vegetable or animal fats, which enhance the absorption of lipophilic substances. If localized paresthesia develops, the site should be thoroughly washed with soap and water. Cold cream can be applied to help diminish the effect.

Contains petroleum distillates - vomiting may cause aspiration pneumonia.

5. FIRE FIGHTING MEASURES

FLASH POINT:	137° F (58° C)
FLASH POINT METHOD:	TCC
FLAME EXTENSION:	No data available
AUTOIGNITION:	No data available
EXTINGUISHING MEDIA:	Water fog, carbon dioxide, foam, dry chemical
FLAMMABLE LIMITS IN AIR - LOWER (%):	Not applicable
FLAMMABLE LIMITS IN AIR - UPPER (%):	Not applicable

NFPA RATING:

Health:	1
Flammability:	2
Reactivity:	0
Special:	None

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

FIRE & EXPLOSION HAZARDS: Do not use or store near heat or open flame.

FIRE FIGHTING INSTRUCTIONS: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear. Keep upwind. Isolate hazard area. Avoid inhalation of smoke and fumes. Use water or foam to reduce fumes. Do not touch spilled material. If possible, move containers from area. Extinguish only if flow can be stopped. Use flooding amounts of water as a fog. Cool containers with flooding amounts of water from as far a distance as possible. Avoid breathing vapors.

HAZARDOUS COMBUSTION PRODUCTS: May form toxic materials: Carbon dioxide, carbon monoxide various hydrocarbons etc.

6. ACCIDENTAL RELEASE MEASURES

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY OR SPILL (24 hr):
Within the United States: (877) 315-9819
Outside the United States: (651) 632-6184

OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION

If it is safe to do so:

- Evacuate non-essential personnel from the area to prevent human exposure.
- Remove all sources of ignition.
- Ventilate area.
- Stop the source of the spill.
- Contain the spill to prevent further contamination of the soil, surface water or ground water.
- May produce slippery conditions.

GENERAL AND DISPOSAL: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the adverse effect of the spill. Ensure that the disposal is in compliance with all Federal, Provincial, and local regulations (See Section 15 for applicable RCRA Number). Refer to Section 15 for applicable Reportable Quantity (RQ) and other regulatory requirements.

SPILL OR LEAK

CONTAINMENT: Small Spills: Absorb with an inert absorbent material such as sand, granular clay, sawdust, Fuller's earth, etc. and dispose of in trash. Place in an approved chemical waste container for disposal. Where possible drum should be oriented to prevent further leakage. Do not allow spilled material to enter any body of water.

Large Spills: Eliminate all ignition sources. Stop leak if you can do so without coming into contact with spilled material. Dike far ahead of the spill for later disposal. All equipment used to clean up spill should be grounded. Prevent entry into waterways, sewers, basements or confined areas. Inform appropriate authorities immediately if contamination occurs.

CLEANUP: Rinse spill area with small amount of soapy water. Contain and absorb the rinsate with inert adsorbents and place into an approved chemical waste container for disposal. Area can be washed with water to remove the last trace residue. Do not allow water to contaminate water supplies or sewers.

7. HANDLING AND STORAGE

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

HANDLING PRECAUTIONS: Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Avoid contamination of feed and foodstuff. Do not use, pour, spill or store near heat or open flame.

STORAGE: Keep containers tightly closed when not in use. Do not contaminate water, food, or feed by storage or disposal. Store product in original container in a cool, dry area away from children and pets. Do not use or store near heat or open flame.

WORK/HYGIENIC PRACTICES: Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

EYES: Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

RESPIRATORY PROTECTION: Use this material only in well ventilated areas. If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended.

SKIN PROTECTION: Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including long pants, long-sleeved shirt and shoes plus socks and chemical-resistant gloves. Remove contaminated clothing.

ENGINEERING CONTROLS: Use in a well ventilated area.

OTHER/GENERAL PROTECTION: Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. All workers should shower after handling the product. Launder all articles after each use. Remove contaminated clothing and wash before reuse. Eye wash facility and safety shower should be available.

EXPOSURE LIMITS - See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Viscous liquid
COLOR:	Brown
ODOR:	Slight paint-like
MELTING POINT:	Not applicable
BOILING POINT:	No data available
DENSITY:	9.47 lbs./gal.
SPECIFIC GRAVITY:	1.45 @ 20°C
VAPOR PRESSURE:	No data available
pH:	No data available
VISCOSITY:	No data available
CORROSION CHARACTERISTICS:	No data available
SOLUBILITY:	Insoluble in water.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures.
INCOMPATIBILITY:	Strong oxidizing agents
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	No data available
HAZARDOUS POLYMERIZATION :	Will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS:	May form toxic materials such as: Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride, various hydrocarbons, etc.
CONDITIONS TO AVOID:	Excessive heat and fire.

11. TOXICOLOGICAL INFORMATION

ACUTE (Product Specific Information):

Oral Toxicity LD ₅₀ (rats)	3801 mg/kg	EPA Tox Category	III
Dermal Toxicity LD ₅₀ (rabbits)	> 2000 mg/kg	EPA Tox Category	III
Inhalation Toxicity LC ₅₀ (rats)	> 23.5 mg/L (one hour)	EPA Tox Category	IV
Eye Irritation (rabbits)	Mildly irritating	EPA Tox Category	III
Skin Irritation (rabbits)	Mildly irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Not applicable

TOXICITY OF ACTIVE INGREDIENTS: PERMETHRIN

CHRONIC/CARCINOGENICITY: A statistically significant increase in the incidence of lung and liver tumors was observed in female mice receiving diets containing 375 and 750 mg/kg/day of permethrin technical over 85 weeks.

Carcinogenicity: NTP: No IARC: No OSHA: No

REPRODUCTION: Not a reproductive toxicant. (mice)

DEVELOPMENTAL TOXICITY: Permethrin was not teratogenic when tested in rats.

MUTAGENICITY: Permethrin did not produce any mutagenic effects when tested in the Ames assay, Chromosome aberration test or DNA damage test.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:**ACUTE AND LONG-TERM TOXICITY TO FISH AND INVERTEBRATES:**

This product is highly toxic to fish.

AVIAN

Permethrin is slightly toxic to birds with oral LC₅₀ values greater than 3600 mg/kg. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effects on bird reproduction.

AQUATIC

Permethrin is highly toxic to fish (LC₅₀ = 0.5 ug/L to 315 ug/L) and aquatic arthropods (LC₅₀ = 0.02 ug/L to 7.6 ug/L). Marine species are often more sensitive than freshwater species. Bacteria, algae, mollusks and amphibians are much more tolerant of permethrin than fish and arthropods. Care should be taken to avoid contamination of the aquatic environment.

ENVIRONMENTAL FATE:

Permethrin is stable at a wide range of pH values. Permethrin has a moderate rate of degradation in soil and half-life is related to soil type, microbial population, concentration in the soil and the aerobic condition of the soil. Because of 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 Pow of 6.1, but because of the ease with which biological systems degrade the molecule, the potential for bioconcentration and accumulation in the environment is low (BCF = 500).

OTHER ENVIRONMENTAL INFORMATION:

Do not apply directly to water. Do not contaminate water by disposal of wastes. Apply this product only as specified on the label. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product allowing it to drift to blooming crops or weeds if bees are visiting the treatment area.

13. DISPOSAL CONSIDERATIONS

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

PRODUCT DISPOSAL:

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these waste cannot be disposed by use according to label instruction, contact your State Pesticide Agency or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:

Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

DISPOSAL METHODS:

Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

14. TRANSPORT INFORMATION

DOT (ground) SHIPPING NAME:	Flammable liquid, n.o.s. (contains petroleum distillates)
UN/NA NUMBER:	UN 1993
HAZARD CLASS:	3
PACKING GROUP:	III
REMARKS:	Marine pollutant when shipped in bulk or non-bulk by water.
EXEMPTION REQUIREMENT:	49 CFR 173.150 (f)(1)

15. REGULATORY INFORMATION

OTHER U.S. FEDERAL REGULATIONS:

Chemical Name	RCRA - U Series Wastes	Clean Water Act - Hazardous Substances	Clean Water Act Section 307
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	None	Not listed	Not listed
Aromatic hydrocarbon (64742-95-6)	None	Not listed	Not listed
1,2,4-Trimethylbenzene (95-63-6)	None	Not listed	Not listed

CWA Section 311:

A component of this product is classified as an oil under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Act of 1990. Discharge or spills that produce a visible sheen on either surface or in waterways/sewers that lead to surface water must be reported to the National Response Center at 800-424-8802.

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	1.0% de minimis concentration	Not listed	None
Aromatic hydrocarbon (64742-95-6)	Not listed	Not listed	None
1,2,4-Trimethylbenzene (95-63-6)	1.0% de minimis concentration	Not listed	None

SARA (311, 312):

Immediate Health:	Yes
Chronic Health:	Yes
Fire:	Yes
Sudden Pressure:	No
Reactivity:	No

Chemical Name	IARC - Group 1 (carcinogenic to humans)	IARC - Group 2A (Probably carcinogenic)	IARC - Group 2B (Possibly carcinogenic)	NTP Carcinogen List
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	No	No	No	Not listed
Aromatic hydrocarbon (64742-95-6)	No	No	No	Not listed
1,2,4-Trimethylbenzene (95-63-6)	No	No	No	Not listed

STATE REGULATIONS:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 2 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above.

Chemical Name	California Proposition 65	California - Directors List of Hazardous Substances	NJ Environmental Hazardous Substances List
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	Not listed	Not listed	Listed
Aromatic hydrocarbon (64742-95-6)	Not listed	Not listed	Not listed
1,2,4-Trimethylbenzene (95-63-6)	Not listed	Listed	Listed

Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	Not listed	Listed	Listed
Aromatic hydrocarbon (64742-95-6)	Not listed	Not listed	Not listed
1,2,4-Trimethylbenzene (95-63-6)	Not listed	Listed	Listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	Not listed	Not listed	Not listed
Aromatic hydrocarbon (64742-95-6)	Not listed	Not listed	Not listed
1,2,4-Trimethylbenzene (95-63-6)	Listed	Listed	Listed

California Proposition 65: Not listed

CHEMICAL INVENTORY INFORMATION:

TSCA Inventory List - Registered pesticide, exempt from TSCA.

Chemical Name	Canada NDSL Inventory List	Canada DSL Inventory List -	EINECS Inventory List -
Permethrin * (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	Not listed	Not listed	258-067-9
Aromatic hydrocarbon (64742-95-6)	Not listed	Listed	265-199-0
1,2,4-Trimethylbenzene (95-63-6)	Not listed	Listed	202-436-9

CANADIAN REGULATIONS:

WHMIS Hazard Class: Not determined

For information regarding potential adverse health effects from exposure to this product, refer to Sections 3 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: Correct MSDS number.

16. OTHER INFORMATION

EPA REGISTRATION NUMBER: 73049-393
MSDS NO.: ENV-0161
REVISION NUMBER: 2
REVISION DATE: 08/07/2007
SUPERCEDES DATE: 07/05/2007

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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