



Material Safety Data Sheet

Permanone® 11.55% Concentrate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Permanone® 11.55% Concentrate
EPA REGISTRATION NUMBER: 73049-278
PCPA REGISTRATION NUMBER: 21862
CHEMICAL DESCRIPTION: Mixture; permethrin
SYNONYM(S): Pramex® 11.55% Concentrate
PRODUCT DESCRIPTION: For formulation into insecticides only.

Permanone is a registered trademark of Bayer AG. Pramex is a registered trademark of Valent BioSciences Corporation.

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. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

THIN CLEAR MEDIUM AMBER LIQUID

- WARNING**
- Harmful if swallowed
 - Causes skin irritation.
 - Causes moderate eye irritation
 - Avoid breathing vapors or spray mist.
 - Do not get in eyes, on skin or on clothing.
 - Toxic to fish and aquatic invertebrates.
 - 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: Based on animal studies, symptoms of overexposure to this product include nausea, vomiting, diarrhea, yellow nasal discharge and activity decrease. Inhalation of high concentrations may cause dizziness, disorientation, loss of coordination, narcosis nausea or narcotic effects.

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Acute Eye Contact: This product can cause prolonged or significant eye irritation. The expected adverse health effects resulting from an exposure may include redness, swelling and pain which could last for an extended period of time.

Acute Skin Contact: This product is slightly toxic when absorbed through the skin. This product can cause moderate skin irritation. The expected adverse health effects resulting from an exposure may include redness and swelling. Based on an evaluation of the ingredients and/or similar products, 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 minimally 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: Based on an evaluation of the ingredients and/or similar products, this product may be 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 Ecotox/Environmental Information, refer to Section 12. For Regulatory Information, refer to Section 15.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight/ Percent	Purpose
Permethrin (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate	52645-53-1	11.55	Active Ingredient
White mineral oil	8042-47-5	<82	Alternate ingredient
Synthetic Isoparaffinic Hydrocarbon	64742-47-8	<82	Alternate ingredient
Odorless Mineral Spirits	8052-41-3	> 75	Canada only , Alternate ingredient

Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling **(877) 315-9819** (within the United States) or **(651) 632-6184** (outside the United States) at any time.

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:

Contains petroleum distillates - vomiting may cause aspiration pneumonia.

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.

5. FIRE FIGHTING MEASURES

FLASH POINT: 127° F (53° C)
FLASH POINT METHOD: TCC
EXTINGUISHING MEDIA: Water fog, carbon dioxide, foam, dry chemical

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 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

VALENT BIOSCIENCES EMERGENCY PHONE NUMBER:

WITHIN THE UNITED STATES: (877) 315-9819
OUTSIDE OF THE UNITED STATES: (651) 632-6184

UN/NA NUMBER: UN 1993**EMERGENCY RESPONSE GUIDEBOOK NO.:** 128**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, especially low areas where vapors may accumulate.
- 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. For additional spill response information refer to the **North American Emergency Response Guidebook**. Ensure that the disposal is in compliance with all Federal, State, and local regulations. Refer to Section 14 for applicable Reportable Quantity (RQ) and other regulatory requirements.

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, container should be oriented to prevent further leakage. Do not allow spilled material to enter any body of water.

Large Spills: Eliminate all ignition sources. Ventilate area. 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 absorbents and place into the same disposal container. Area can be washed with water to remove the last trace of 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: Do not store at temperatures below 32°F. 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 & FACE: Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

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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 & HAND 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.

EXPOSURE LIMITS

Chemical Name	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Permethrin (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate	None	None	None
White mineral oil	None	None	None
Synthetic Isoparaffinic Hydrocarbon	None	None	1200 mg/m ³ TWA
Odorless Mineral Spirits	100 ppm TWA	2900 mg/m ³ TWA 500 ppm TWA	None

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM:	liquid
COLOR:	Thin, clear, medium-amber
ODOR:	Aromatic
FLASH POINT:	127° F (53° C)
FLASH POINT METHOD:	TCC
BOILING POINT:	No data available
DENSITY:	6.81 lbs./gal.
pH:	8.45
VISCOSITY:	16.3 cP @ 23°C
CORROSION CHARACTERISTICS:	No evidence of incompatibility
SOLUBILITY:	Forms emulsion 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, various hydrocarbons, etc.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Oral Toxicity LD ₅₀ (rats)	> 5300 mg/kg	EPA Tox Category	IV
Dermal Toxicity LD ₅₀ (rabbits)	> 2000 mg/kg	EPA Tox Category	III
Inhalation Toxicity LC ₅₀ (rats)	No data available	EPA Tox Category	III
Eye Irritation (rabbits)	Severely irritating	EPA Tox Category	II
Skin Irritation (rabbits)	Moderately irritating	EPA Tox Category	III
Skin Sensitization (guinea pigs)	Probable non-sensitizer	EPA Tox Category	Not available

CARCINOGEN CLASSIFICATION

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-dichloroethyl)-2,2-dimethylcyclopropanecarboxylate (52645-53-1)	No	No	No	Not listed
Synthetic Isoparaffinic Hydrocarbon (64742-47-8)	No	No	No	Not listed
White mineral oil (8042-47-5)	No	No	No	Not listed
Odorless Mineral Spirits (8052-41-3)	No	No	No	Not listed

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.

Pyrethrum has been tested in lifetime feeding studies in mice and rats. Slightly elevated incidences of benign tumors of the thyroid and liver were seen in rats following high doses of Pyrethrins. Further detailed scientific studies into the mode of action responsible for these effects show that:

- Because of biological species differences, the rat thyroid tumors are not relevant to humans;
- The rat liver tumors occur in animals only at doses greatly exceeding human exposure levels and that cause cell proliferation (mitogenesis).

Based on the body of data available, the World Health Organization/Food and Agricultural Organization Joint Meeting on Pesticide Residues (JMPR) concluded that: "The increased tumor incidences associated with exposure to pyrethrins are threshold phenomenon of negligible relevance to the low concentrations to which humans are exposed and that pyrethrins have no genotoxic or mutagenic potential."

Similarly, the USEPA has classified Pyrethrins as "Not Likely to be Carcinogenic to Humans" at doses that do not cause a mitogenic response in the liver/cell proliferation." Thus, Pyrethrins can be considered to be non-carcinogenic at exposure levels relevant to human use of Pyrethrins-containing products.

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.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 2. For information regarding regulations pertaining to this product, refer to Section 15.

12. ECOLOGICAL INFORMATION

AVIAN TOXICITY: Permethrin is slightly toxic to birds with oral LC50 values greater than 3,600 mg/kg. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effects on bird reproduction.

AQUATIC ORGANISM TOXICITY: 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 are 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.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For information on disposal of unused, unwanted product, contact the provincial regulatory agency or manufacturer. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

14. TRANSPORT INFORMATION

UN/NA NUMBER:	UN 1993
DOT (ground) SHIPPING NAME:	Flammable liquid, n.o.s. (contains petroleum distillates)
TECHNICAL NAME (hazardous material):	Not applicable
HAZARD CLASS:	3
PACKING GROUP:	III
DOT REPORTABLE QUANTITY (RQ):	Not applicable
REMARKS:	Marine pollutant when shipped in bulk or non-bulk by water.
EXEMPTION REQUIREMENT:	49 CFR 173.150
EMERGENCY RESPONSE GUIDEBOOK NO.:	128
MARINE POLLUTANT:	Marine Pollutant when shipped in bulk or non-bulk by water.

TDG PROPER SHIPPING NAME:	Flammable liquid, n.o.s. (contains petroleum distillates)
UN NUMBER:	UN 1993
HAZARD CLASS:	3
PACKING GROUP:	III

15. REGULATORY INFORMATION

PESTICIDE REGULATIONS: All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

U.S. FEDERAL REGULATIONS:

Ingredients in this product are reviewed against an inclusive list of federal regulations. Therefore, the user should consult appropriate authorities. The federal regulations reviewed include: Clean Water Act, SARA, CERCLA, RCRA, DOT and OSHA. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

Permethrin (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
SARA 313 Chemicals 1.0% de minimis concentration

SARA (311, 312):

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

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 8 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

Permethrin (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate

MA Right To Know	Listed
NJ Right To Know	Listed

Odorless Mineral Spirits

California - Directors List of Hazardous Substances	California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer.
MA Right To Know	Listed
NJ Right To Know	Listed
PA Right To Know	Listed
RI Right To Know	Listed
MN Hazardous Substance	Listed

CANADIAN INVENTORY:

Synthetic Isoparaffinic Hydrocarbon

Canada DSL Inventory List - Listed

White mineral oil

Canada DSL Inventory List - Listed

Odorless Mineral Spirits

Canada DSL Inventory List - Listed

For information regarding potential adverse health effects from exposure to this product, refer to Sections 2 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: New format. Revisions throughout MSDS. Added Canadian registration number (PCPA). Added Canadian Inventory information, if listed.

EPA REGISTRATION NUMBER: 73049-278

PCPA REGISTRATION NUMBER: 21862

MSDS NO.: ENV-0016

REVISION NUMBER: 3

REVISION DATE: 11/12/2008

SUPERCEDES DATE: February 18, 2007

RESPONSIBLE PERSON(S): Valent U.S.A. Corporation, Corporate EH&S, (925) 256-2803

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

This information is provided in good faith but without express or implied warranty. Buyer assumes all responsibility for safety and use not in accordance with label instructions.

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.

The information in this MSDS is based on data available to us as of the revision date given herein, and believed to be correct. Contact Valent Biosciences to confirm if you have the most current MSDS.

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