SECTION 2. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview

Caution! Harmful if swallowed, inhaled or absorbed through the skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.

Physical State

liquid

Odor

mild

Appearance

dark amber

Exposure routes

Skin contact, Ingestion, Inhalation, Eye contact

Immediate Effects

Eye

May cause mild irritation to eyes. Avoid contact with eyes.

Skin

May cause slight irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if absorbed through skin. Avoid contact with skin and clothing.

Ingestion

Harmful if swallowed. Do not take internally.

Inhalation

Harmful if inhaled. Avoid inhalation of vapour or mist.

Chronic or Delayed

Long-Term

This product or its components may have target organ effects. This product or its components may have long term (chronic) health effects.
Potential Environmental Effect

Highly toxic to bees. Extremely toxic to fish and aquatic organisms.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>31.28</td>
</tr>
<tr>
<td>Piperonyl butoxide</td>
<td>51-03-6</td>
<td>66.00</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated light</td>
<td>64742-47-8</td>
<td>2.72</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye
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 physician or poison control center immediately.

Skin
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Notes to physician

Hazards
This product contains a pyrethroid.

Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

Flash point
> 93 °C / > 199 °F

Suitable extinguishing media
Carbon dioxide (CO2), Dry chemical, Foam, Water
Fire Fighting Instructions

Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods for cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice
Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

SECTION 7. HANDLING AND STORAGE

Handling procedures
Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Storing Procedures
Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Work/Hygienic Procedures
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Min/Max Storage Temperatures
Recommended minimum transport/storage temperature: 4 °C / 39 °F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection
Follow all label instructions. Train employees in safe use of the product.
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

Eye/Face Protection: Safety glasses with side-shields

Hand protection: Chemical resistant nitrile rubber gloves

Body Protection: Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory protection: When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>OES BCS*</th>
<th>TWA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>TWA</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TX ESL</td>
<td>ST ESL</td>
<td>50 ug/m³</td>
</tr>
<tr>
<td></td>
<td>TX ESL</td>
<td>AN ESL</td>
<td>5 ug/m³</td>
</tr>
<tr>
<td>Piperonyl butoxide</td>
<td>51-03-6</td>
<td>OES BCS*</td>
<td>500 ppm</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: dark amber

Physical State: liquid

Odor: mild

Density: ca. 1.11 g/cm³ at 20 °C

Water solubility: insoluble

SECTION 10. STABILITY AND REACTIVITY

Incompatibility: Strong oxidizing agents

Chemical Stability: Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the two technical-grade active ingredients, permethrin and piperonyl butoxide.
Acute oral toxicity  male/female combined rat: LD50: 1,250 mg/kg
Acute dermal toxicity  rabbit: LD50: > 2,020 mg/kg
Acute inhalation toxicity  rat: LC50: > 4.4 mg/l
  Exposure time: 4 h
  Determined in the form of liquid aerosol.
  rat: LC50: > 17.6 mg/l
  Exposure time: 1 h
  Determined in the form of liquid aerosol.
  Extrapolated from the 4 hr LC50.
Skin irritation  rabbit: slight irritation
Eye irritation  rabbit: Minimally irritating.
Sensitisation  guinea pig: Sensitising
Chronic toxicity  Permethrin caused neurobehavioral effects (e.g., tremors) and/or organ effects (liver, lung, kidney) in chronic studies in rats, mice and dogs.
  Piperonyl butoxide caused decreased body weights and/or increased organ weights (liver, kidney, adrenal) in chronic studies in rats and dogs.
Assessment Carcinogenicity
  Permethrin has low oncogenic potential in mice and no oncogenic potential in rats, therefore, EPA has concluded the likelihood of oncogenicity effects in humans from permethrin to be extremely low or nonexistent.
  Piperonyl butoxide gave no evidence of a carcinogenic potential in a lifetime feeding study in rats. In an oncogenicity study in mice, piperonyl butoxide caused an increased incidence of liver tumors. The US EPA has categorized piperonyl butoxide as a group C carcinogen, possible human carcinogen, based on limited evidence of cancer in laboratory animals.
ACGIH
  None.
NTP
  None.
IARC
  Permethrin  52645-53-1  Overall evaluation: 3
  Piperonyl butoxide  51-03-6  Overall evaluation: 3
OSHA
  None.
Reproductive toxicity  REPRODUCTION:
  Permethrin was not a reproductive toxicant in multi-generation reproduction studies in rats.
  Piperonyl butoxide was not a reproductive toxicant in a two-generation study in
DEVELOPMENTAL TOXICITY:
Permethrin was not a primary developmental toxicant in rats, mice and rabbits. Developmental effects (e.g., decreased fetal weights) were observed in rats and rabbits but were considered secondary to maternal toxicity.

Piperonyl butoxide did not cause developmental, embryotoxic or teratogenic effects in developmental toxicity studies in rats and rabbits.

Assessment neurotoxicity
Permethrin caused neurobehavioral effects (e.g., tremors) in an acute and subchronic neurotoxicity screening study in rats without any correlating neuropathological changes.

Piperonyl butoxide did not demonstrate the potential to cause neurotoxicity in standard toxicity studies submitted to the Agency. EPA has concluded that there is not a concern for neurotoxicity resulting from exposure to piperonyl butoxide.

Mutagenicity
Permethrin was not mutagenic or genotoxic in a battery of in vitro and in vivo mutagenicity studies.

Piperonyl butoxide does not have significant potential for mutagenicity based on sufficient evidence.

SECTION 12. ECOLOGICAL INFORMATION

Environmental precautions
Do not apply when weather conditions favor runoff or drift. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance
Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.

Container Disposal
Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

RCRA Information
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.
SECTION 14. TRANSPORT INFORMATION

CFR
Not dangerous goods / not hazardous material

IMDG
UN-Number 3082
Class 9
Packaging group III
Marine pollutant Marine Pollutant
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN, PIPERONYL BUTOXIDE SOLUTION)

IATA
UN-Number 3082
Class 9
Packaging group III
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN, PIPERONYL BUTOXIDE SOLUTION )

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1250

US Federal Regulations
TSCA list
Piperonyl butoxide 51-03-6
Distillates (petroleum), hydrotreated light 64742-47-8

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.

SARA Title III - Section 302 - Notification and Information
None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
Permethrin 52645-53-1 1.0%
Piperonyl butoxide 51-03-6 1.0%

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.
US State Right-To-Know Ingredients
- Permethrin: 52645-53-1, NJ
- Piperonyl butoxide: 51-03-6, NJ

Canadian Regulations
- Canadian Domestic Substance List
  - Piperonyl butoxide: 51-03-6
  - Distillates (petroleum), hydrotreated light: 64742-47-8

Environmental
- CERCLA: None.
- Clean Water Section 307 Priority Pollutants: None.
- Safe Drinking Water Act Maximum Contaminant Levels: None.

International Regulations
- European Inventory of Existing Commercial Substances (EINECS)
  - Permethrin: 52645-53-1
  - Piperonyl butoxide: 51-03-6
  - Distillates (petroleum), hydrotreated light: 64742-47-8

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
- Health: 1
- Flammability: 1
- Reactivity: 0
- Others: none

- Health: 1
- Flammability: 1
- Physical Hazard: -
- PPE: -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Updated due to new system and numbering scheme. Updated for general editorial purposes.

Revision Date: 12/08/2010

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