SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Trade name AQUA-RESLIN®
Product code (UVP) 05952255
SDS Number 102000004847
EPA Registration No. 432-796

Relevant identified uses of the substance or mixture and uses advised against
Use Insecticide
Restrictions on use See product label for restrictions.

Information on supplier
Supplier Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Acute toxicity(Oral, Inhalation): Category 4

Signal word: Warning

Hazard statements
Harmful if swallowed or if inhaled.

Precautionary statements
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing mist/ spray.
Use only outdoors or in a well-ventilated area.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell. Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell. Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>20.0</td>
</tr>
<tr>
<td>Piperonyl butoxide</td>
<td>51-03-6</td>
<td>20.0</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy alkylate</td>
<td>64741-65-7</td>
<td>10.0</td>
</tr>
<tr>
<td>Fatty alcohol polyglycol ether 16-20 EO</td>
<td>9004-98-2</td>
<td>1.35</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of first aid measures

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

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.

Skin contact: 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.

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 physician or poison control center immediately.

Ingestion: Call a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give liquids to drink. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms: To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Risks: Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard. This product contains a pyrethroid.
SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Carbon dioxide (CO2), Dry chemical, Foam, Water

Unsuitable High volume water jet

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

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

Flash point > 93 °C

Auto-ignition temperature No data available

Lower explosion limit No data available

Upper explosion limit No data available

Explosivity Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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

Methods and materials for containment and cleaning up

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. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.
SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Hygiene measures 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. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>5 mg/m3 (TWA)</td>
<td>03 2014</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>5 mg/m3 (REL)</td>
<td>2010</td>
<td>NIOSH</td>
</tr>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>5 mg/m3 (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>5 mg/m3 (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>5 mg/m3 (TWA PEL)</td>
<td>09 2013</td>
<td>US CA OEL</td>
</tr>
<tr>
<td>Permethrin</td>
<td>52645-53-1</td>
<td>10 mg/m3 (SK-SEN)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Piperonyl butoxide</td>
<td>51-03-6</td>
<td>50 ppm (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy alkylate</td>
<td>64741-65-7</td>
<td>400 mg/m3/100 ppm (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy alkylate</td>
<td>64741-65-7</td>
<td>400 mg/m3/100 ppm (REL)</td>
<td>2010</td>
<td>NIOSH</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy</td>
<td>64741-65-7</td>
<td>400 mg/m3/100 ppm</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
</tbody>
</table>
**Exposure controls**

**Personal protective equipment**
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

**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.

**Hand protection**
Chemical resistant nitrile rubber gloves

**Eye protection**
Safety glasses with side-shields

**Skin and body protection**
Wear long-sleeved shirt and long pants and shoes plus socks.

**General protective measures**
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.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

- **Appearance**: white
- **Physical State**: Liquid
- **Odor**: characteristic
- **Odour Threshold**: No data available
- **pH**: 4.9 - 6.0 (100 %) (23 °C)
- **Vapor Pressure**: No data available
- **Vapor Density (Air = 1)**: No data available
- **Density**: ca. 1.02 g/cm³ (20 °C)
Evaporation rate No data available
Boiling Point No data available
Melting / Freezing Point No data available
Water solubility soluble
Minimum Ignition Energy Not applicable
Decomposition temperature No data available
Partition coefficient: n-octanol/water Not applicable
Viscosity 135 - 205 cps (25 °C)
Flash point > 93 °C
Auto-ignition temperature No data available
Lower explosion limit No data available
Upper explosion limit No data available
Explosivity Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition No data available
Chemical stability Stable under normal conditions.
Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials No data available

Hazardous decomposition products No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Ingestion, Inhalation
Immediate Effects
Eye May cause slight irritation.
Skin May cause slight irritation.
Ingestion
Harmful if swallowed.

Information on toxicological effects

Acute oral toxicity
LD50 (Rat) 1,000 mg/kg

Acute inhalation toxicity
LC50 (male/female combined Rat) > 2.87 mg/l
Exposure time: 4 h

Acute dermal toxicity
LD50 (Rabbit) > 5,000 mg/kg

Skin corrosion/irritation
slight irritation (Rabbit)

Serious eye damage/eye irritation
slight irritation (Rabbit)

Respiratory or skin sensitisation
Skin: Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure
Permethrin did not cause specific target organ toxicity in experimental animal studies.
Piperonyl butoxide did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity
Permethrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Piperonyl butoxide was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity
Permethrin caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver, Lungs. The mechanism that triggers tumours in rodents is not relevant for the low exposures encountered under normal use conditions.
Piperonyl butoxide was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH
Permethrin 52645-53-1 Group A4

NTP
None.

IARC
Permethrin 52645-53-1 Overall evaluation: 3
Piperonyl butoxide 51-03-6 Overall evaluation: 3

OSHA
None.

Assessment toxicity to reproduction
Permethrin did not cause reproductive toxicity in a two-generation study in rats.
Piperonyl butoxide did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity
Permethrin did not cause developmental toxicity in rats and rabbits.
Piperonyl butoxide did not cause developmental toxicity in rats and rabbits.
Further information
Acute toxicity studies have not been performed on this product as formulated. The toxicological data are based on the active ingredient. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
- LC50 (Poecilia reticulata (guppy)) 0.0076 mg/l
  Exposure time: 96 h
  The value mentioned relates to the active ingredient permethrin.
- LC50 (Cyprinodon variegatus (sheepshead minnow)) 3.94 mg/l
  Exposure time: 96 h
  The value mentioned relates to the active ingredient piperonyl butoxide.

Toxicity to aquatic invertebrates
- EC50 (Daphnia magna (Water flea)) 0.00017 mg/l
  Exposure time: 48 h
  The value mentioned relates to the active ingredient permethrin.
- EC50 (Daphnia magna (Water flea)) 0.51 mg/l
  Exposure time: 48 h
  The value mentioned relates to the active ingredient piperonyl butoxide.

Toxicity to aquatic plants
- EC50 (Algae) 0.5 mg/l
  Exposure time: 72 h
  The value mentioned relates to the active ingredient permethrin.
- EC50 (Algae) > 9.1 mg/l
  Exposure time: 72 h
  The value mentioned relates to the active ingredient piperonyl butoxide.

Biodegradability
- Permethrin: Not rapidly biodegradable
- Piperonyl butoxide: Not rapidly biodegradable

Koc
- Permethrin: Koc: 100000
- Piperonyl butoxide: Koc: 399 - 830

Bioaccumulation
- Permethrin: Bioconcentration factor (BCF) 300
  Does not bioaccumulate.
- Piperonyl butoxide: Potential bioaccumulation

Mobility in soil
- Permethrin: Immobile in soil
- Piperonyl butoxide: Moderately mobile in soils

Environmental precautions
Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.
Do not apply when weather conditions favor runoff or drift.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites.
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

Waste treatment methods
Product
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.

Contaminated packaging
Triple rinse containers.
Puncture container to avoid re-use.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
If burned, stay out of smoke.
Follow advice on product label and/or leaflet.

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

49CFR
Not dangerous goods / not hazardous material

IMDG
UN number 3082
Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN, PIPERONYL BUTOXIDE SOLUTION)

IATA
UN number 3082
Class 9
Packaging group III
Environn. Hazardous Mark YES
Proper shipping name 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.
SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-796
US Federal Regulations
TSCA list
Piperonyl butoxide 51-03-6
Naphtha (petroleum), heavy alkylate 64741-65-7
Fatty alcohol polyglycol ether 16-20 EO 9004-98-2
Cetyl alcohol 36653-82-4
Water 7732-18-5
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
Not applicable.
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
Permethrin 52645-53-1
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 CA, CT, IL, MN, NJ, RI
Piperonyl butoxide 51-03-6 NJ
Naphtha (petroleum), heavy alkylate 64741-65-7 CA, CT, MN, RI
Cetyl alcohol 36653-82-4 CT

EPA/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 required on the pesticide label:
Signal word: Caution!

Hazard statements: Harmful if swallowed. Wash thoroughly with soap and water after handling.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms
49CFR Code of Federal Regulations, Title 49
ACGIH US. ACGIH Threshold Limit Values
ATE Acute toxicity estimate
CAS-Nr. Chemical Abstracts Service number
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
EINECS European inventory of existing commercial substances
ELINCS European list of notified chemical substances
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
N.O.S. Not otherwise specified
NTP US. National Toxicology Program (NTP) Report on Carcinogens
OECD Organization for Economic Co-operation and Development
TDG Transportation of Dangerous Goods
TWA Time weighted average
UN United Nations
WHO World health organisation

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

Health - 1  Flammability - 1  Physical Hazard - 0  PPE -

Reason for Revision: The following sections have been revised: Section 4: First Aid Measures. Reviewed and updated for general editorial purposes.

Revision Date: 06/17/2019

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