

## SAFETY DATA SHEETS

**This SDS packet was issued with item:**

078949741

N/A

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

**SECTION 1. IDENTIFICATION**

Product name : Permethrin / Piperonyl Butoxide Formulation

**Manufacturer or supplier's details**

Company name of supplier : Merck & Co., Inc  
Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065  
Telephone : 908-740-4000  
Emergency telephone : 1-908-423-6000  
E-mail address : EHSDATASTEWARD@merck.com

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

Restrictions on use : Not applicable

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Skin sensitization : Category 1

Aspiration hazard : Category 1

**GHS label elements**

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H304 May be fatal if swallowed and enters airways.  
H317 May cause an allergic skin reaction.

Precautionary Statements : **Prevention:**  
P261 Avoid breathing mist or vapors.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves.  
**Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P331 Do NOT induce vomiting.  
P333 + P313 If skin irritation or rash occurs: Get medical attention.  
P363 Wash contaminated clothing before reuse.  
**Storage:**

**Permethrin / Piperonyl Butoxide Formulation**

Version 7.0      Revision Date: 10/01/2022      SDS Number: 677265-00017      Date of last issue: 04/09/2022  
Date of first issue: 05/16/2016

P405 Store locked up.

**Disposal:**

P501 Dispose of contents and container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

| Chemical name   | CAS-No.    | Concentration (% w/w) |
|---|------------|-----------------------|
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 | $\geq 40 - \leq 80$   |
| Distillates (petroleum), solvent refined heavy paraffinic | 64741-88-4 | $\geq 10 - \leq 50$   |
| Permethrin (ISO)  | 52645-53-1 | $\geq 1 - \leq 5$     |
| 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether           | 51-03-6    | $\geq 1 - \leq 5$     |

**SECTION 4. FIRST AID MEASURES**

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.  
Remove contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
If vomiting occurs have person lean forward.  
Call a physician or poison control center immediately.  
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : May be fatal if swallowed and enters airways.  
May cause an allergic skin reaction.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- Notes to physician : Treat symptomatically and supportively.

**SECTION 5. FIRE-FIGHTING MEASURES**

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

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- |  |   |   |
|--|---|---|
| Suitable extinguishing media                   | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media                 | : | None known.   |
| Specific hazards during fire fighting          | : | Exposure to combustion products may be a hazard to health.  |
| Hazardous combustion products                  | : | Chlorine compounds<br>Carbon oxides   |
| Specific extinguishing methods                 | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |
| Special protective equipment for fire-fighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment.  |
- 

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- |   |   |   |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).  |
| Environmental precautions   | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Prevent spreading over a wide area (e.g., by containment or oil barriers).<br>Retain and dispose of contaminated wash water.<br>Local authorities should be advised if significant spillages cannot be contained.   |
| Methods and materials for containment and cleaning up               | : | Soak up with inert absorbent material.<br>For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.<br>Clean up remaining materials from spill with suitable absorbent.<br>Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. |
- 

**SECTION 7. HANDLING AND STORAGE**

- |                         |   |   |
|-------------------------|---|---|
| Technical measures      | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section. |
| Local/Total ventilation | : | Use only with adequate ventilation.   |
| Advice on safe handling | : | Do not get on skin or clothing.   |

# Permethrin / Piperonyl Butoxide Formulation

Version 7.0      Revision Date: 10/01/2022      SDS Number: 677265-00017      Date of last issue: 04/09/2022  
 Date of first issue: 05/16/2016

Avoid breathing mist or vapors.  
 Do not swallow.  
 Avoid contact with eyes.  
 Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
 Keep container tightly closed.  
 Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.  
 Store locked up.  
 Keep tightly closed.

Materials to avoid : Store in accordance with the particular national regulations.  
 Do not store with the following product types:  
 Strong oxidizing agents  
 Gases

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components  | CAS-No.    | Value type<br>(Form of exposure)   | Control parameters / Permissible concentration | Basis     |
|---|------------|------------------------------------|--|-----------|
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 | TWA (Inhalable particulate matter) | 5 mg/m <sup>3</sup>                            | ACGIH     |
|   |            | TWA (Mist)                         | 5 mg/m <sup>3</sup>                            | OSHA Z-1  |
|   |            | TWA (Mist)                         | 5 mg/m <sup>3</sup>                            | NIOSH REL |
|   |            | ST (Mist)                          | 10 mg/m <sup>3</sup>                           | NIOSH REL |
| Distillates (petroleum), solvent refined heavy paraffinic | 64741-88-4 | TWA (Inhalable particulate matter) | 5 mg/m <sup>3</sup>                            | ACGIH     |
|   |            | TWA (Mist)                         | 5 mg/m <sup>3</sup>                            | OSHA Z-1  |
|   |            | TWA (Mist)                         | 5 mg/m <sup>3</sup>                            | NIOSH REL |
|   |            | ST (Mist)                          | 10 mg/m <sup>3</sup>                           | NIOSH REL |
| Permethrin (ISO)  | 52645-53-1 | TWA                                | 80 µg/m <sup>3</sup> (OEB 3)                   | Internal  |
|   |            | Wipe limit                         | 800 µg/100 cm <sup>2</sup>                     | Internal  |
| 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether           | 51-03-6    | TWA                                | 4 mg/m <sup>3</sup> (OEB 1)                    | Internal  |

**Engineering measures** : Ensure adequate ventilation, especially in confined areas.  
 Minimize workplace exposure concentrations.

### Personal protective equipment

**Respiratory protection** : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment: Safety glasses

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid

Color : amber

Odor : odorless

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling range : No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : No data available

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## Permethrin / Piperonyl Butoxide Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|  |   |  |
|--|---|--|
| Upper explosion limit / Upper flammability limit | : | No data available  |
| Lower explosion limit / Lower flammability limit | : | No data available  |
| Vapor pressure                                   | : | < 2 mmHg (77 °F / 25 °C)                                 |
| Relative vapor density                           | : | No data available  |
| Relative density                                 | : | No data available  |
| Density  | : | 0.885 g/cm <sup>3</sup>                                  |
| Solubility(ies)                                  | : |  |
| Water solubility                                 | : | negligible   |
| Partition coefficient: n-octanol/water           | : | Not applicable   |
| Autoignition temperature                         | : | No data available  |
| Decomposition temperature                        | : | No data available  |
| Viscosity  | : |  |
| Viscosity, dynamic                               | : | 40 mPa.s   |
| Viscosity, kinematic                             | : | No data available  |
| Explosive properties                             | : | Not explosive  |
| Oxidizing properties                             | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight                                 | : | No data available  |
| Particle size                                    | : | Not applicable   |

### SECTION 10. STABILITY AND REACTIVITY

|                                    |   |  |
|------------------------------------|---|--|
| Reactivity                         | : | Not classified as a reactivity hazard.         |
| Chemical stability                 | : | Stable under normal conditions.                |
| Possibility of hazardous reactions | : | Can react with strong oxidizing agents.        |
| Conditions to avoid                | : | None known.                                    |
| Incompatible materials             | : | Oxidizing agents                               |
| Hazardous decomposition products   | : | No hazardous decomposition products are known. |

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

Inhalation  
Skin contact

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 46 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                           |   |
|---------------------------|---|
| Acute oral toxicity       | : LD50 (Rat): > 5,000 mg/kg<br>Method: OECD Test Guideline 401  |
| Acute inhalation toxicity | : LC50 (Rat): > 5.53 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: OECD Test Guideline 403<br>Assessment: The substance or mixture has no acute inhalation toxicity |
| Acute dermal toxicity     | : LD50 (Rabbit): > 5,000 mg/kg<br>Method: OECD Test Guideline 402   |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                           |  |
|---------------------------|--|
| Acute oral toxicity       | : LD50 (Rat): > 5,000 mg/kg<br>Method: OECD Test Guideline 401<br>Remarks: Based on data from similar materials  |
| Acute inhalation toxicity | : LC50 (Rat): > 5.53 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: OECD Test Guideline 403<br>Assessment: The substance or mixture has no acute inhalation toxicity<br>Remarks: Based on data from similar materials |
| Acute dermal toxicity     | : LD50 (Rabbit): > 5,000 mg/kg<br>Method: OECD Test Guideline 402<br>Remarks: Based on data from similar materials   |

**Permethrin (ISO):**

|                           |  |
|---------------------------|--|
| Acute oral toxicity       | : LD50 (Rat): 480 - 554 mg/kg                |
| Acute inhalation toxicity | : LC50 (Rat): 2.3 mg/l<br>Exposure time: 4 h |



**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): &gt; 2,000 mg/kg

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 423Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402**Skin corrosion/irritation**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**Species : Rabbit  
Result : No skin irritation**Distillates (petroleum), solvent refined heavy paraffinic:**Species : Rabbit  
Result : No skin irritation  
Remarks : Based on data from similar materials**Permethrin (ISO):**Species : Rabbit  
Result : No skin irritation**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**Species : Rabbit  
Result : No eye irritation**Distillates (petroleum), solvent refined heavy paraffinic:**Species : Rabbit  
Result : No eye irritation

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

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|         |  |
|---------|--|
| Method  | : OECD Test Guideline 405              |
| Remarks | : Based on data from similar materials |

**Permethrin (ISO):**

|         |                     |
|---------|---------------------|
| Species | : Rabbit            |
| Result  | : No eye irritation |

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|         |                           |
|---------|---------------------------|
| Species | : Rabbit                  |
| Result  | : No eye irritation       |
| Method  | : OECD Test Guideline 405 |

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                    |                           |
|--------------------|---------------------------|
| Test Type          | : Buehler Test            |
| Routes of exposure | : Skin contact            |
| Species            | : Guinea pig              |
| Method             | : OECD Test Guideline 406 |
| Result             | : negative                |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                    |  |
|--------------------|--|
| Test Type          | : Buehler Test                         |
| Routes of exposure | : Skin contact                         |
| Species            | : Guinea pig                           |
| Method             | : OECD Test Guideline 406              |
| Result             | : negative                             |
| Remarks            | : Based on data from similar materials |

**Permethrin (ISO):**

|                    |                |
|--------------------|----------------|
| Test Type          | : Buehler Test |
| Routes of exposure | : Skin contact |
| Species            | : Guinea pig   |
| Result             | : positive     |

|            |   |
|------------|---|
| Assessment | : Probability or evidence of skin sensitization in humans |
|------------|---|

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|                    |                           |
|--------------------|---------------------------|
| Test Type          | : Maximization Test       |
| Routes of exposure | : Skin contact            |
| Species            | : Guinea pig              |
| Method             | : OECD Test Guideline 406 |
| Result             | : negative                |

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

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**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                       |  |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Chromosome aberration test in vitro<br>Result: negative<br>Remarks: Based on data from similar materials  |
| Genotoxicity in vivo  | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)<br>Species: Mouse<br>Application Route: Intraperitoneal injection<br>Result: negative |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                       |  |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES)<br>Method: OECD Test Guideline 471<br>Result: negative<br>Remarks: Based on data from similar materials   |
| Genotoxicity in vivo  | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)<br>Species: Mouse<br>Application Route: Intraperitoneal injection<br>Method: OECD Test Guideline 474<br>Result: negative<br>Remarks: Based on data from similar materials |

**Permethrin (ISO):**

|                       |  |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative<br><br>Test Type: In vitro mammalian cell gene mutation test<br>Result: negative<br><br>Test Type: Chromosome aberration test in vitro<br>Result: negative<br><br>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)<br>Result: negative<br><br>Test Type: Chromosome aberration test in vitro<br>Result: positive |
| Genotoxicity in vivo  | : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)<br>Species: Mouse<br>Result: negative   |

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|                                     |  |
|-------------------------------------|--|
|                                     | Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)<br>Species: Mouse<br>Result: negative                                 |
|                                     | Test Type: Rodent dominant lethal test (germ cell) (in vivo)<br>Species: Mouse<br>Result: negative   |
|                                     | Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)<br>Species: Rat<br>Application Route: Intraperitoneal injection<br>Result: negative   |
|                                     | Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)<br>Species: Mouse<br>Application Route: Ingestion<br>Result: positive |
| Germ cell mutagenicity - Assessment | : Weight of evidence does not support classification as a germ cell mutagen.   |

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|                       |  |
|-----------------------|--|
| Genotoxicity in vitro | : Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative |
|-----------------------|--|

**Carcinogenicity**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                   |                           |
|-------------------|---------------------------|
| Species           | : Mouse, female           |
| Application Route | : Skin contact            |
| Exposure time     | : 18 Months               |
| Method            | : OECD Test Guideline 451 |
| Result            | : negative                |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                   |  |
|-------------------|--|
| Species           | : Mouse                                |
| Application Route | : Skin contact                         |
| Exposure time     | : 78 weeks                             |
| Method            | : OECD Test Guideline 451              |
| Result            | : negative                             |
| Remarks           | : Based on data from similar materials |

**Permethrin (ISO):**

|         |            |
|---------|------------|
| Species | : Rat      |
| Result  | : negative |

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|         |            |
|---------|------------|
| Species | : Mouse    |
| Result  | : negative |

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|                   |                           |
|-------------------|---------------------------|
| Species           | : Rat                     |
| Application Route | : Ingestion               |
| Exposure time     | : 107 weeks               |
| Method            | : OECD Test Guideline 451 |
| Result            | : negative                |

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                      |   |
|----------------------|---|
| Effects on fertility | : Test Type: One-generation reproduction toxicity study<br>Species: Rat<br>Application Route: Ingestion<br>Result: negative |
|----------------------|---|

**Permethrin (ISO):**

|                              |  |
|------------------------------|--|
| Effects on fertility         | : Test Type: Two-generation reproduction toxicity study<br>Species: Rat<br>Application Route: Ingestion<br>Result: negative  |
| Effects on fetal development | : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test<br>Species: Rat<br>Application Route: Ingestion<br>Result: negative |

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|                              |   |
|------------------------------|---|
| Effects on fertility         | : Test Type: Two-generation reproduction toxicity study<br>Species: Rat<br>Application Route: Ingestion<br>Result: negative |
| Effects on fetal development | : Test Type: Embryo-fetal development<br>Species: Rat<br>Application Route: Ingestion<br>Result: negative                   |

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
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| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

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**II****STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Repeated dose toxicity****Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                   |  |
|-------------------|--|
| Species           | : Rabbit                               |
| NOAEL             | : 1,000 mg/kg                          |
| Application Route | : Skin contact                         |
| Exposure time     | : 4 Weeks                              |
| Method            | : OECD Test Guideline 410              |
| Remarks           | : Based on data from similar materials |

|                   |  |
|-------------------|--|
| Species           | : Rat                                  |
| NOAEL             | : > 980 mg/m <sup>3</sup>              |
| Application Route | : inhalation (dust/mist/fume)          |
| Exposure time     | : 4 Weeks                              |
| Remarks           | : Based on data from similar materials |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                   |  |
|-------------------|--|
| Species           | : Rabbit                               |
| NOAEL             | : 1,000 mg/kg                          |
| Application Route | : Skin contact                         |
| Exposure time     | : 4 Weeks                              |
| Method            | : OECD Test Guideline 410              |
| Remarks           | : Based on data from similar materials |

|                   |  |
|-------------------|--|
| Species           | : Rat                                  |
| NOAEL             | : > 980 mg/m <sup>3</sup>              |
| Application Route | : inhalation (dust/mist/fume)          |
| Exposure time     | : 4 Weeks                              |
| Remarks           | : Based on data from similar materials |

**Permethrin (ISO):**

|                   |               |
|-------------------|---------------|
| Species           | : Rat         |
| NOAEL             | : 0.2201 mg/l |
| Application Route | : Inhalation  |
| Exposure time     | : 90 Days     |

|                   |             |
|-------------------|-------------|
| Species           | : Rat       |
| NOAEL             | : 175 mg/kg |
| Application Route | : Ingestion |
| Exposure time     | : 90 Days   |

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|         |               |
|---------|---------------|
| Species | : Rat         |
| NOAEL   | : 1,323 mg/kg |

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|                   |             |
|-------------------|-------------|
| Application Route | : Ingestion |
| Exposure time     | : 7 Weeks   |

**Aspiration toxicity**

May be fatal if swallowed and enters airways.

**Product:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Components:****Distillates (petroleum), solvent-refined light paraffinic:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|  |   |
|--|---|
| Toxicity to fish   | : LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l<br>Exposure time: 96 h<br>Test substance: Water Accommodated Fraction<br>Method: OECD Test Guideline 203          |
| Toxicity to daphnia and other aquatic invertebrates                    | : LL50 (Daphnia magna (Water flea)): > 10,000 mg/l<br>Exposure time: 48 h<br>Test substance: Water Accommodated Fraction  |
| Toxicity to algae/aquatic plants                                       | : NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Test substance: Water Accommodated Fraction<br>Method: OECD Test Guideline 201 |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC (Daphnia magna (Water flea)): 10 mg/l  |

**Distillates (petroleum), solvent refined heavy paraffinic:**

|   |  |
|---|--|
| Toxicity to fish                                    | : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202<br>Remarks: Based on data from similar materials        |

## Permethrin / Piperonyl Butoxide Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|  |   |   |
|--|---|---|
| Toxicity to algae/aquatic plants                                       | : | EC50 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC ( <i>Daphnia magna</i> (Water flea)): 10 mg/l<br>Exposure time: 21 d<br>Method: OECD Test Guideline 211<br>Remarks: Based on data from similar materials                       |
| Toxicity to microorganisms   | : | NOEC: > 1.93 mg/l<br>Exposure time: 10 min<br>Method: DIN 38 412 Part 8<br>Remarks: Based on data from similar materials  |

### Permethrin (ISO):

|  |   |   |
|--|---|---|
| Toxicity to fish   | : | LC50 ( <i>Lepomis macrochirus</i> (Bluegill sunfish)): 0.00079 mg/l<br>Exposure time: 96 h  |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 ( <i>Daphnia magna</i> (Water flea)): 0.0001 mg/l<br>Exposure time: 48 h   |
| Toxicity to algae/aquatic plants                                       | : | ErC50 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): > 1.13 mg/l<br>Exposure time: 72 h<br><br>EC10 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): 0.0023 mg/l<br>Exposure time: 72 h |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC ( <i>Danio rerio</i> (zebra fish)): 0.00041 mg/l<br>Exposure time: 35 d<br>Method: OECD Test Guideline 210   |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC ( <i>Daphnia magna</i> (Water flea)): 0.0047 µg/l<br>Exposure time: 21 d<br>Method: OECD Test Guideline 211  |
| Toxicity to microorganisms   | : | EC50: > 1,000 mg/l<br>Exposure time: 3 h  |

### 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:

|   |   |   |
|---|---|---|
| Toxicity to fish                                    | : | LC50 ( <i>Cyprinodon variegatus</i> (sheepshead minnow)): 3.94 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 ( <i>Daphnia magna</i> (Water flea)): 0.51 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202                |
| Toxicity to algae/aquatic plants                    | : | ErC50 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): 3.89 mg/l  |



**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|  |  |
|--|--|
|  | Exposure time: 72 h<br>Method: OECD Test Guideline 201   |
|  | NOEC ( <i>Pseudokirchneriella subcapitata</i> (green algae)): 0.824 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201 |
| Toxicity to fish (Chronic toxicity)                                    | : NOEC ( <i>Pimephales promelas</i> (fathead minnow)): 0.18 mg/l<br>Exposure time: 35 d  |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC ( <i>Daphnia magna</i> (Water flea)): 0.03 mg/l<br>Exposure time: 21 d  |
| Toxicity to microorganisms   | : EC50: > 1,000 mg/l<br>Exposure time: 3 h<br>Method: OECD Test Guideline 209  |

**Persistence and degradability****Components:****Distillates (petroleum), solvent-refined light paraffinic:**

|                  |  |
|------------------|--|
| Biodegradability | : Result: Not readily biodegradable.<br>Biodegradation: 4 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301B |
|------------------|--|

**Distillates (petroleum), solvent refined heavy paraffinic:**

|                  |  |
|------------------|--|
| Biodegradability | : Result: Not readily biodegradable.<br>Biodegradation: 2 - 4 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301B |
|------------------|--|

**Permethrin (ISO):**

|                  |  |
|------------------|--|
| Biodegradability | : Result: Not readily biodegradable.<br>Method: OECD Test Guideline 301F |
|------------------|--|

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

|                  |  |
|------------------|--|
| Biodegradability | : Result: Not readily biodegradable.<br>Biodegradation: 0 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301D |
|------------------|--|

**Bioaccumulative potential****Components:****Permethrin (ISO):**

|                 |  |
|-----------------|--|
| Bioaccumulation | : Species: <i>Lepomis macrochirus</i> (Bluegill sunfish)<br>Bioconcentration factor (BCF): 570 |
|-----------------|--|

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

Partition coefficient: n-octanol/water : log Pow: 4.67

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Partition coefficient: n-octanol/water : log Pow: 5

**Mobility in soil**

No data available

**Other adverse effects**

No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.

**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Permethrin (ISO), 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether)  
Class : 9  
Packing group : III  
Labels : 9

**IATA-DGR**

UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
(Permethrin (ISO), 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether)  
Class : 9  
Packing group : III  
Labels : Miscellaneous  
Packing instruction (cargo aircraft) : 964  
Packing instruction (passenger aircraft) : 964  
Environmentally hazardous : yes

**IMDG-Code**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Permethrin (ISO), 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether)  
Class : 9

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|                  |   |          |
|------------------|---|----------|
| Packing group    | : | III      |
| Labels           | : | 9        |
| EmS Code         | : | F-A, S-F |
| Marine pollutant | : | yes      |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****49 CFR**

|                      |   |   |
|----------------------|---|---|
| UN/ID/NA number      | : | UN 3082   |
| Proper shipping name | : | Environmentally hazardous substance, liquid, n.o.s.<br>(Permethrin (ISO), 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether)  |
| Class                | : | 9   |
| Packing group        | : | III   |
| Labels               | : | CLASS 9   |
| ERG Code             | : | 171   |
| Marine pollutant     | : | yes(Permethrin (ISO), 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether)  |
| Remarks              | : | Above applies only to containers over 119 gallons or 450 liters.<br>Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO. |

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

**SECTION 15. REGULATORY INFORMATION****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

|                             |   |  |
|-----------------------------|---|--|
| <b>SARA 311/312 Hazards</b> | : | Respiratory or skin sensitization<br>Aspiration hazard |
|-----------------------------|---|--|

|                 |   |  |
|-----------------|---|--|
| <b>SARA 313</b> | : | The following components are subject to reporting levels established by SARA Title III, Section 313: |
|-----------------|---|--|

|                  |            |               |
|------------------|------------|---------------|
| Permethrin (ISO) | 52645-53-1 | >= 1 - <= 5 % |
|------------------|------------|---------------|

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

|   |         |               |
|---|---------|---------------|
| 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether | 51-03-6 | >= 1 - <= 5 % |
|---|---------|---------------|

**US State Regulations****Pennsylvania Right To Know**

|   |            |
|---|------------|
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 |
| Distillates (petroleum), solvent refined heavy paraffinic | 64741-88-4 |
| 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether           | 51-03-6    |
| Permethrin (ISO)  | 52645-53-1 |

**California List of Hazardous Substances**

|   |            |
|---|------------|
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 |
| Distillates (petroleum), solvent refined heavy paraffinic | 64741-88-4 |

**California Permissible Exposure Limits for Chemical Contaminants**

|   |            |
|---|------------|
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 |
| Distillates (petroleum), solvent refined heavy paraffinic | 64741-88-4 |

**The ingredients of this product are reported in the following inventories:**

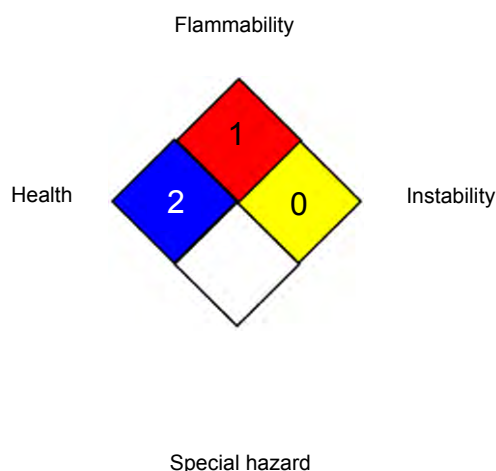
|       |                  |
|-------|------------------|
| AICS  | : not determined |
| DSL   | : not determined |
| IECSC | : not determined |

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**SECTION 16. OTHER INFORMATION****Further information**

# Permethrin / Piperonyl Butoxide Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

**NFPA 704:****HMIS® IV:**

|                        |          |          |
|------------------------|----------|----------|
| <b>HEALTH</b>          | <b>/</b> | <b>3</b> |
| <b>FLAMMABILITY</b>    |          | <b>1</b> |
| <b>PHYSICAL HAZARD</b> |          | <b>0</b> |

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

**Full text of other abbreviations**

|                 |   |   |
|-----------------|---|---|
| ACGIH           | : | USA. ACGIH Threshold Limit Values (TLV)   |
| NIOSH REL       | : | USA. NIOSH Recommended Exposure Limits  |
| OSHA Z-1        | : | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants          |
| ACGIH / TWA     | : | 8-hour, time-weighted average   |
| NIOSH REL / TWA | : | Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek |
| NIOSH REL / ST  | : | STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday    |
| OSHA Z-1 / TWA  | : | 8-hour time weighted average  |

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office

**Permethrin / Piperonyl Butoxide Formulation**

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 04/09/2022  |
| 7.0     | 10/01/2022     | 677265-00017 | Date of first issue: 05/16/2016 |

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of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 10/01/2022

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8