

Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Permethrin / Piperonyl Butoxide Formulation

Supplier's company name, address and phone number

Company name of supplier : MSD

Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd.

Menuma factory

Telephone : 048-588-8411

E-mail address : EHSDATASTEWARD@msd.com

Emergency telephone number : +1-908-423-6000

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product Restrictions on use : Not applicable

2. HAZARDS IDENTIFICATION

GHS classification of chemical product

Skin sensitisation : Category 1

Aspiration hazard : Category 1

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

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.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

P261 Avoid breathing mist or vapours.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P302 + P352 IF ON SKIN: Wash with plenty of water.

P331 Do NOT induce vomiting.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse

P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

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

Other hazards which do not result in classification

Important symptoms and outlines of the emergency assumed

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)	ENCS No.
Distillates (petroleum), solvent- refined light paraffinic	64741-89-5	>= 40 - <= 80	9-1700
Distillates (petroleum), solvent refined heavy paraffinic	64741-88-4	>= 10 - <= 50	9-1692
2-(2-butoxyethoxy)ethyl 6- propylpiperonyl ether	51-03-6	5	9-1484
Permethrin (ISO)	52645-53-1	5	3-4010

4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical ad-

vice immediately.

When symptoms persist or in all cases of doubt seek medical

advice.



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

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 centre 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.
This product contains a pyrethroid.

Pyrethroid poisoning should not be confused with carbamate

or organophosphate poisoning.

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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray

Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire-

fighting

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod- :

ucts

Chlorine compounds

Carbon oxides

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment. Use water spray to cool unopened containers.

Remove undamaged containers from fire area if it is safe to do

so

Evacuate area.

Special protective equipment:

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Personal precautions, protec: :

tive equipment and emer-

gency procedures

Use personal protective equipment.

Follow safe handling advice (see section 7) and personal pro-

tective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.

Prevent further leakage or spillage if safe to do so.

Prevent spreading over a wide area (e.g. by containment or oil

barriers).

Retain and dispose of contaminated wash water.

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.

For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absor-

bent.

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 deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

7. HANDLING AND STORAGE

Handling

Technical measures : See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation Advice on safe handling Use only with adequate ventilation.

Do not get on skin or clothing.

Avoid breathing mist or vapours.

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 as-

sessment

Keep container tightly closed.

Take care to prevent spills, waste and minimize release to the

environment.

Avoidance of contact Hygiene measures

Oxidizing agents

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.



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Storage

Conditions for safe storage : Keep in properly labelled containers.

Store locked up. Keep tightly closed.

Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:

Strong oxidizing agents

Packaging material : Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Concentration standard / Permissible concentration	Basis
Distillates (petroleum), solvent- refined light paraffinic	64741-89-5	TWA (Inhal- able particu- late matter)	5 mg/m3	ACGIH
Permethrin (ISO)	52645-53-1	TWA	80 μg/m3 (OEB 3)	Internal
		Wipe limit	800 μg/100 cm ²	Internal
2-(2-butoxyethoxy)ethyl 6- propylpiperonyl ether	51-03-6	TWA	4 mg/m3 (OEB 1)	Internal

Engineering measures : Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection. Combined particulates and organic vapour type

Filter type : Hand protection

on

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending

on the concentration and quantity of the hazardous substance and 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



Permethrin / Piperonyl Butoxide Formulation

Version 8.0

Revision Date: 2024/09/28

SDS Number: 677259-00020

Date of last issue: 2024/04/06 Date of first issue: 2016/05/16

potential.

Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

Colour : amber

Odour : odourless

Odour Threshold : No data available

Melting point/freezing point : No data available

Boiling point, initial boiling

point and boiling range

No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : No data available

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / Up- :

per flammability limit

No data available

Lower explosion limit /

Lower flammability limit

No data available

Flash point : No data available

Decomposition temperature : No data available

pH : No data available

Evaporation rate : No data available

Auto-ignition temperature : No data available

Viscosity

Viscosity, dynamic : 40 mPa.s

Viscosity, kinematic : No data available

Solubility(ies)

Water solubility : negligible

Partition coefficient: n-

octanol/water

: Not applicable

Vapour pressure : < 2 mmHg (25 °C)



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Density and / or relative density

Relative density : No data available

Density : 0.885 g/cm³

Relative vapour density : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics

Particle size : Not applicable

10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.

Possibility of hazardous reac- : Can react with strong oxidizing agents.

tions

Can react with strong oxidizing agent

Conditions to avoid : None known.
Incompatible materials : Oxidizing agents

Hazardous decomposition

products

No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of:

exposure

: Inhalation Skin contact Ingestion

Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg

Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: Calculation method

Components:

Distillates (petroleum), solvent-refined light paraffinic:



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5.53 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: OECD Test Guideline 403

Assessment: The substance or mixture has no acute inhala-

tion toxicity

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

Method: OECD Test Guideline 402

Distillates (petroleum), solvent refined heavy paraffinic:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Method: OECD Test Guideline 401

Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 5.53 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Assessment: The substance or mixture has no acute inhala-

tion toxicity

Remarks: Based on data from similar materials

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

Method: OECD Test Guideline 402

Remarks: Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 402

Permethrin (ISO):

Acute oral toxicity : LD50 (Rat): 480 - 554 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.3 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

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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

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

Permethrin (ISO):

Species : Rabbit

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

Method : OECD Test Guideline 405

Remarks : Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Species : Rabbit

Result : Irritation to eyes, reversing within 21 days

Method : OECD Test Guideline 405



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Permethrin (ISO):

Species : Rabbit

Result : No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Distillates (petroleum), solvent-refined light paraffinic:

Test Type : Buehler Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

Distillates (petroleum), solvent refined heavy paraffinic:

Test Type : Buehler Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

Remarks : Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Test Type : Maximisation Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

Permethrin (ISO):

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

Germ cell mutagenicity

Not classified based on available information.

Components:

Distillates (petroleum), solvent-refined light paraffinic:



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Intraperitoneal injection

Result: negative

Distillates (petroleum), solvent refined heavy paraffinic:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Method: OECD Test Guideline 471

Result: negative

Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test

Method: OECD Test Guideline 476

Result: negative

Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Intraperitoneal injection

Method: OECD Test Guideline 474

Result: negative

Remarks: Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Permethrin (ISO):

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Test Type: DNA damage and repair, unscheduled DNA syn-

thesis in mammalian cells (in vitro)



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Result: negative

Test Type: Chromosome aberration test in vitro

Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow

cytogenetic test, chromosomal analysis)

Species: Mouse Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)

Species: Mouse Result: negative

Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Rat

Application Route: Intraperitoneal injection

Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow

cytogenetic test, chromosomal analysis)

Species: Mouse

Application Route: Ingestion

Result: positive

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

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
Result : negative



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Remarks : Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Species : Rat
Application Route : Ingestion
Exposure time : 107 weeks

Method : OECD Test Guideline 451

Result : negative

Permethrin (ISO):

Species : Rat Result : negative

Species : Mouse Result : negative

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

Species: Rat

Application Route: Ingestion

Result: negative

Distillates (petroleum), solvent refined heavy paraffinic:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening

test

Species: Rat

Application Route: Ingestion
Method: OECD Test Guideline 421

Result: negative

Remarks: Based on data from similar materials

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: Skin contact

Result: negative

Remarks: Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Effects on fertility : Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: Ingestion

Result: negative

Effects on foetal develop: Test Type: Embryo-foetal development



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

ment Species: Rat

Application Route: Ingestion

Result: negative

Permethrin (ISO):

Effects on fertility : Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: Ingestion

Result: negative

Effects on foetal develop-

ment

Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: Ingestion

Result: negative

STOT - single exposure

Not classified based on available information.

Components:

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Assessment : May cause respiratory irritation.

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/m3

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



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Method : OECD Test Guideline 410

Remarks : Based on data from similar materials

Species : Rat

NOAEL : > 980 mg/m3

Application Route : inhalation (dust/mist/fume)

Exposure time : 4 Weeks

Remarks : Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Species : Rat

NOAEL : 1,323 mg/kg
Application Route : Ingestion
Exposure time : 7 Weeks

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

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.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Distillates (petroleum), solvent-refined light paraffinic:

Toxicity to fish : LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l

Exposure time: 96 h

Test substance: Water Accommodated Fraction



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Method: OECD Test Guideline 203

Toxicity to daphnia and other:

aquatic invertebrates

LL50 (Daphnia magna (Water flea)): > 10,000 mg/l

Exposure time: 48 h

Test substance: Water Accommodated Fraction

Toxicity to algae/aquatic

plants

NOEC (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Test substance: Water Accommodated Fraction

Method: OECD Test Guideline 201

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic 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

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 10,000 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 10 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC: > 1.93 mg/l

Exposure time: 10 min Method: DIN 38 412 Part 8

Remarks: Based on data from similar materials

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 3.94

mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0.51 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Toxicity to algae/aguatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.89

ma/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.824

Exposure time: 72 h

Method: OECD Test Guideline 201

M-Factor (Acute aquatic tox-

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 0.18 mg/l

Exposure time: 35 d

Toxicity to daphnia and other:

aquatic invertebrates (Chron-

ic toxicity)

M-Factor (Chronic aquatic

toxicity)

NOEC (Daphnia magna (Water flea)): 0.03 mg/l

Exposure time: 21 d

1

Toxicity to microorganisms EC50: > 1,000 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Permethrin (ISO):

Toxicity to fish LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l

Exposure time: 96 h

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0.0001 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13

mg/l

Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023

Exposure time: 72 h

M-Factor (Acute aquatic tox-

10,000

Toxicity to fish (Chronic tox-

icity)

NOEC (Danio rerio (zebra fish)): 0.00041 mg/l

Exposure time: 35 d

Method: OECD Test Guideline 210

Toxicity to daphnia and other: aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 0.0047 µg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

M-Factor (Chronic aquatic

toxicity)

10,000



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Toxicity to microorganisms : EC50: > 1,000 mg/l

Exposure time: 3 h

Persistence and degradability

Components:

Distillates (petroleum), solvent-refined light paraffinic:

Biodegradability : Result: Not readily biodegradable.

Biodegradation: 4 % Exposure time: 28 d

Method: OECD Test Guideline 301B

Distillates (petroleum), solvent refined heavy paraffinic:

Biodegradability : Result: Not readily biodegradable.

Biodegradation: 2 - 4 % Exposure time: 28 d

Method: OECD Test Guideline 301B

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Biodegradability : Result: Not readily biodegradable.

Biodegradation: 0 % Exposure time: 28 d

Method: OECD Test Guideline 301D

Permethrin (ISO):

Biodegradability : Result: Not readily biodegradable.

Method: OECD Test Guideline 301F

Bioaccumulative potential

Components:

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Partition coefficient: n- : log Pow: 5

octanol/water

Permethrin (ISO):

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 570

Partition coefficient: n-

octanol/water

: log Pow: 4.67

Mobility in soil

No data available

Hazardous to the ozone layer

Not applicable



Permethrin / Piperonyl Butoxide Formulation

Version **Revision Date:** SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues Dispose of in accordance with local regulations.

Do not dispose of waste into sewer.

Contaminated packaging Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number UN 3082

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

(Permethrin (ISO), 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl

ether)

Class 9 Ш Packing group Labels 9 Environmentally hazardous yes

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 Ш

Miscellaneous Labels 964

Packing instruction (cargo

aircraft)

Packing instruction (passen-964

ger aircraft)

Environmentally hazardous yes

IMDG-Code

UN number UN 3082

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

(Permethrin (ISO), 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl

ether)

Class 9 Ш Packing group Labels 9 **EmS Code** F-A, S-F Marine pollutant yes



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

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.

ERG Code : 171

15. REGULATORY INFORMATION

Related Regulations

Fire Service Law

Not applicable to dangerous materials / designated flammables.

Chemical Substance Control Law

Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Substances Prevented From Impairment of Health

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

Substances Subject to be Notified Names

Article 57-2 (Enforcement Order Table 9)

Chemical name	Concentration (%)	Remarks
m-phenoxybenzyl 3-(2,2-dichlorovinyl)-	>=1 - <=5	From April 1st, 2026
2,2-dimethylcyclopropanecarboxylate		
Mineral oil	>=100 - <=100	-

Substances Subject to be Indicated Names

Article 57 (Enforcement Order Article 18)

Chemical	name	Remarks



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-	From April 1st, 2026
dimethylcyclopropanecarboxylate	
Mineral oil	-

Skin and Eye Damage Substances for PPE Requirements (ISHL MO Art. 594-2)

Not applicable

Carcinogenic Substances (Article 577-2 of the Occupational Health and Safety Regulations)

Not applicable

Ordinance on Prevention of Hazards Due to Specified Chemical Substances

Not applicable

Ordinance on Prevention of Lead Poisoning

Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

Ordinance on Prevention of Organic Solvent Poisoning

Not applicable

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Not applicable

Poisonous and Deleterious Substances Control Law

Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Class I Designated Chemical Substances

Chemical name	Administration number	Concentration (%)
3-Phenoxybenzyl 3-(2,2-dichlorovinyl)-	350	5.0
2,2-dimethylcyclopropanecarboxylate		

Class II Designated Chemical Substances

Chemical name	Administration number	Concentration (%)
5-Propan-1-yl-6-(2,5,8-trioxadodecan-1-	809	5.0
yl)-1,3-benzodioxol		

High Pressure Gas Safety Act

Not applicable

Explosive Control Law

Not applicable

Vessel Safety Law

Miscellaneous dangerous substances and articles (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law

Miscellaneous dangerous substances and articles (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation : Not classified as noxious liquid substance

Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

Waste Disposal and Public Cleansing Law

Industrial waste

The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

16. OTHER INFORMATION

In this SDS, if the concentration of substances subject to notification under the Industrial Safety and Health Law is indicated as a range, it includes cases where it is a trade secret.

Further information

Sources of key data used to : compile the Safety Data

Sheet

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

cy, http://echa.europa.eu/

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

Date format : yyyy/mm/dd

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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 con-



Permethrin / Piperonyl Butoxide Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/04/06 8.0 2024/09/28 677259-00020 Date of first issue: 2016/05/16

centration; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - 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; WHMIS - Workplace Hazardous Materials Information System

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.

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