

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



Purge III

Version	Revision Date:	SDS Number:	Date of last issue: 01/22/2026
1.2	04/09/2026	11539258-00003	Date of first issue: 06/02/2025

SECTION 1. IDENTIFICATION

Product name : Purge III
Product code : UVP: DU00000144 Specification: 102D00000448 EPA Registration No:101563-316

Manufacturer or supplier's details

Company name of supplier : Environmental Science U.S. LLC.
Address : 5000 Centregreen Way, Suite 400
Cary NC 27513
Telephone : 1-800-331-2867
Emergency telephone : +1 703-741-5970
E-mail address : uscontact@envu.com

Recommended use of the chemical and restrictions on use

Recommended use : Insecticide
Restrictions on use : For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Aerosols : Category 2

Acute toxicity (Inhalation) : Category 4

Specific target organ toxicity : Category 3
- single exposure

Simple Asphyxiant

Other hazards

Repeated exposure may cause skin dryness or cracking.
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).

GHS label elements

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H223 Flammable aerosol.
H229 Pressurized container: May burst if heated.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
May displace oxygen and cause rapid suffocation.

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Precautionary Statements

Prevention:

P210 Keep away from heat, sparks, open flame and hot surfaces. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing spray.
P271 Use only outdoors or in a well-ventilated area.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.

Storage:

P405 Store locked up.
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C (122 °F).

Disposal:

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
1,1-Difluoroethane	75-37-6*	>= 40 - < 45	-
Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics	-	>= 25 - < 30	-
Butane	106-97-8*	>= 15 - < 20	-
N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	113-48-4*	3.05	-
2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO)	51-03-6*	1.95	-
Pyrethrins and Pyrethroids	8003-34-7*	0.975	-

* Indicates that the identifier is a CAS No.

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

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	advice.
If inhaled	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
In case of skin contact	: In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.
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. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	: central nervous system effects Harmful if inhaled. May cause drowsiness or dizziness. May displace oxygen and cause rapid suffocation. Gas reduces oxygen available for breathing. This product contains a pyrethroid. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning. Prolonged or repeated contact may dry skin and cause irritation.
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	: Do not induce vomiting: contains petroleum distillates and/or aromatic solvents. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	: None known.
Specific hazards during fire fighting	: Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
Hazardous combustion products	: Carbon oxides Fluorine compounds Nitrogen oxides (NO _x)
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so.

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Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Remove all sources of ignition.
Ventilate the area.
Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective 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 : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapors/mists with a water spray jet.
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.
Clean up remaining materials from spill with suitable absorbent.
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.
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 : If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Avoid breathing spray.
Do not swallow.
Avoid contact with eyes.

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Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.
Do not spray on an open flame or other ignition source.

Conditions for safe storage : Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
Do not pierce or burn, even after use.
Keep cool. Protect from sunlight.

Materials to avoid : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1,1-Difluoroethane	75-37-6	TWA	1,000 ppm	US WEEL
Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics	Not Assigned	TWA (Mist)	5 mg/m ³	OSHA Z-1
		TWA (Mist)	5 mg/m ³	NIOSH REL
		ST (Mist)	10 mg/m ³	NIOSH REL
Butane	106-97-8	TWA	800 ppm 1,900 mg/m ³	NIOSH REL
		STEL	1,000 ppm	ACGIH
Pyrethrins and Pyrethroids	8003-34-7	TWA	5 mg/m ³	ACGIH
		TWA	5 mg/m ³	NIOSH REL
		TWA	5 mg/m ³	OSHA Z-1

Engineering measures : Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

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If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

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 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. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

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

Skin and body protection : Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.

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.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Aerosol containing a compressed gas

Color : clear

Odor : No data available

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

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Initial boiling point and boiling range	:	Not applicable
Flash point	:	> 185 °F / > 85 °C
		Flash point is only valid for liquid portion in the aerosol can.
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Flammable aerosol.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	Not applicable
Relative vapor density	:	Not applicable
Density	:	No data available
Bulk density	:	0.83 g/cm ³
Solubility(ies)	:	
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle characteristics	:	
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	:	Flammable aerosol.
		Vapors may form explosive mixture with air.
		If the temperature rises there is danger of the vessels bursting

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due to the high vapor pressure.
Can react with strong oxidizing agents.

Conditions to avoid	:	Heat, flames and sparks.
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
Ingestion
Eye contact

Acute toxicity

Harmful if inhaled.

Product:

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

Acute inhalation toxicity : LC50: 2.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Components:

1,1-Difluoroethane:

Acute inhalation toxicity : LC50 (Rat, male): > 437500 ppm
Exposure time: 4 h
Test atmosphere: gas

Lowest observed adverse effect concentration (Dog): 150000 ppm
Test atmosphere: gas
Remarks: Cardiac sensitization

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

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): > 4.951 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

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Butane:

Acute inhalation toxicity : LC50 (Rat): 570000 ppm
Exposure time: 15 min
Test atmosphere: gas
Remarks: Based on data from similar materials

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Acute oral toxicity : LD50 (Rat, female): 5,000 mg/kg
Method: OECD Test Guideline 425
Remarks: The test was conducted according to guideline

Acute inhalation toxicity : LC50 (Rat): 1.94 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: The test was conducted according to guideline

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: The test was conducted according to guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Pyrethrins and Pyrethroids:

Acute oral toxicity : LD50 (Rat): 700 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 3.4 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Expert judgment
Remarks: Based on national or regional regulation.

Skin corrosion/irritation

Not classified based on available information.

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Components:

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Species	:	Rabbit
Result	:	No skin irritation
Remarks	:	Based on data from similar materials

Assessment	:	Repeated exposure may cause skin dryness or cracking.
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N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
Remarks	:	The test was conducted according to guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Assessment	:	Repeated exposure may cause skin dryness or cracking.
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Pyrethrins and Pyrethroids:

Species	:	Rabbit
Result	:	No eye irritation

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Result	:	No eye irritation

Components:

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405
Remarks	:	Based on data from similar materials

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405
Remarks	:	The test was conducted according to guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

Species	:	Rabbit
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Result : Irritation to eyes, reversing within 21 days
Method : OECD Test Guideline 405

Pyrethrins and Pyrethroids:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Assessment : Does not cause skin sensitization.

Components:

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Test Type : Maximization Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Test Type : Buehler Test
Routes of exposure : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : positive
Remarks : The test was conducted according to guideline

Result : Probability or evidence of low to moderate skin sensitization rate in humans

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Pyrethrins and Pyrethroids:

Test Type : Buehler Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative

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Germ cell mutagenicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: The test was conducted according to guideline

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 490
Result: negative
Remarks: The test was conducted according to guideline

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: The test was conducted according to guideline

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative
Remarks: The test was conducted according to guideline

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on data from similar materials

Butane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

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N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Pyrethrins and Pyrethroids:

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

Carcinogenicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Species : Rat
Application Route : inhalation (vapor)
Exposure time : 104 weeks
Method : OECD Test Guideline 453
Result : negative
Remarks : The test was conducted equivalent or similar to guideline

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
Result : negative

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

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Method : OECD Test Guideline 451
Result : negative

Pyrethrins and Pyrethroids:

Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
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:

1,1-Difluoroethane:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Inhalation
Method: OECD Test Guideline 422
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 414
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion

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Method: OECD Test Guideline 416
Result: negative
Remarks: The test was conducted according to guideline

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative

Pyrethrins and Pyrethroids:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

STOT-single exposure

May cause drowsiness or dizziness.
May displace oxygen and cause rapid suffocation.

Components:

1,1-Difluoroethane:

Assessment : May cause drowsiness or dizziness.

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

Assessment : May cause respiratory irritation.

Pyrethrins and Pyrethroids:

Assessment : May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

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Components:

Pyrethrins and Pyrethroids:

Routes of exposure	: Ingestion
Target Organs	: Liver, Blood, Nervous system
Assessment	: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Repeated dose toxicity

Components:

1,1-Difluoroethane:

Species	: Rat
NOAEL	: 67.485 mg/l
Application Route	: inhalation (vapor)
Exposure time	: 104 Weeks
Method	: OECD Test Guideline 453
Remarks	: The test was conducted equivalent or similar to guideline

Butane:

Species	: Rat
NOAEL	: >= 9000 ppm
Application Route	: inhalation (gas)
Exposure time	: 6 Weeks
Method	: OECD Test Guideline 422

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Species	: Rat
NOAEL	: 500 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks

Species	: Rat
NOAEL	: 0.135 mg/l
LOAEL	: 0.4 mg/kg
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 90 Days

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Pyrethrins and Pyrethroids:

Species	: Rat
NOAEL	: 57 mg/kg
Application Route	: Ingestion

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Exposure time : 90 Days

Aspiration toxicity

Not classified based on available information.

Components:

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

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:

1,1-Difluoroethane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 100 mg/l
aquatic invertebrates
Exposure time: 48 h
Remarks: Based on data from similar materials

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): > 88,444 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction

Toxicity to daphnia and other : EL50 (Daphnia magna (Water flea)): > 1,000 mg/l
aquatic invertebrates
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1,000
plants
mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (green algae)):
1,000 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.4 mg/l
Exposure time: 96 h

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Americamysis bahia (Opossum Shrimp)): 0.53 mg/l
Exposure time: 96 h
Method: US-EPA OPPTS 850.1035
Remarks: The test was conducted according to guideline

Toxicity to algae/aquatic plants : NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.891 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: The test was conducted according to guideline

EbC50 (Raphidocelis subcapitata (freshwater green alga)): 2.28 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: The test was conducted according to guideline

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: The test was conducted according to guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.89 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.824 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.18 mg/l
Exposure time: 35 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.03 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

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Pyrethrins and Pyrethroids:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.0052 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 0.012 mg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to fish (Chronic tox- : NOEC (Pimephales promelas (fathead minnow)): 0.0019 mg/l
icity) Exposure time: 35 d

Toxicity to daphnia and other : NOEC (Daphnia magna (Water flea)): 0.00086 mg/l
aquatic invertebrates (Chron- Exposure time: 21 d
ic toxicity)

Persistence and degradability

Components:

1,1-Difluoroethane:

Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301D
Remarks: The test was conducted according to guideline
Based on data from similar materials

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 22.4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Butane:

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 3 %
Exposure time: 29 d
Method: OECD Test Guideline 301B
Remarks: The test was conducted according to guideline

Biodegradation Simulation : Environmental Compartment: Soil
Tests Value type: DT50
Value: 341 d
Measurement method: OECD Test Guideline 307
Temperature: 20 °C
Remarks: The test was conducted equivalent or similar to
guideline

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

Biodegradability : Result: Not readily biodegradable.

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Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Pyrethrins and Pyrethroids:

Biodegradability : Result: Not readily biodegradable.

Bioaccumulative potential

Components:

1,1-Difluoroethane:

Partition coefficient: n- : log Pow: 0.75
octanol/water

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics:

Partition coefficient: n- : Remarks: No data available
octanol/water

Butane:

Partition coefficient: n- : log Pow: 2.89
octanol/water

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Partition coefficient: n- : log Pow: 3.71
octanol/water

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO):

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

Pyrethrins and Pyrethroids:

Partition coefficient: n- : log Pow: > 4
octanol/water

Mobility in soil

Components:

N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide:

Distribution among environ- : log Koc: 3.236
mental compartments Method: OECD Test Guideline 106
Remarks: The test was conducted equivalent or similar to
guideline

Other adverse effects

No data available

Endocrine disrupting properties

No data available

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Do not dispose of waste into sewer.
Contaminated packaging	:	Follow advice on product label and/or leaflet. Empty containers retain residue and can be dangerous. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1950
Proper shipping name	:	AEROSOLS
Class	:	2.1
Packing group	:	Not assigned by regulation
Labels	:	2.1
Environmentally hazardous	:	yes

IATA-DGR

UN/ID No.	:	UN 1950
Proper shipping name	:	Aerosols, flammable
Class	:	2.1
Packing group	:	Not assigned by regulation
Labels	:	Flammable Gas
Packing instruction (cargo aircraft)	:	203
Packing instruction (passenger aircraft)	:	203

IMDG-Code

UN number	:	UN 1950
Proper shipping name	:	AEROSOLS (Pyrethrins and Pyrethroids, N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide)
Class	:	2.1
Packing group	:	Not assigned by regulation
Labels	:	2.1
EmS Code	:	F-D, S-U
Marine pollutant	:	yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 1950
Proper shipping name	:	Aerosols
Class	:	2.1

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Packing group : Not assigned by regulation
Labels : FLAMMABLE GAS
ERG Code : 126
Marine pollutant : yes(Pyrethrins and Pyrethroids, N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide)

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

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Pyrethrins and Pyrethroids	8003-34-7	1	102

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.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Simple Asphyxiant
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO)	51-03-6	1.95 %
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US State Regulations

Pennsylvania Right To Know

1,1-Difluoroethane	75-37-6
Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics	Not Assigned
Butane	106-97-8
N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	113-48-4
Pyrethrins and Pyrethroids	8003-34-7

California List of Hazardous Substances

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics	Not Assigned
Butane	106-97-8

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California Permissible Exposure Limits for Chemical Contaminants

Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics Not Assigned
Butane 106-97-8

International Regulations

Montreal Protocol : 1,1-Difluoroethane

Product Type : Insecticides, acaricides and products to control other arthropods

Active substance : 3.05 %
N-(2-Ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide

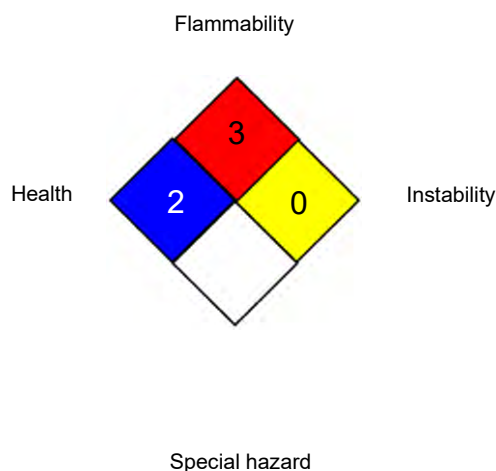
1.95 %
2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether (Piperonyl butoxide/PBO)

0.975 %
Pyrethrins and Pyrethroids

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV / CED:

HEALTH	/	1
FLAMMABILITY		4
PHYSICAL HAZARD		0

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
US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit

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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
US WEEL / TWA	:	8-hr TWA

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 Standardization; 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 Organization 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 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, Authorization 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; 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

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/
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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.

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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