

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



ACTELIC SMOKE GENERATOR No. 20

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	15.01.2026	11625802-00001	Date of first issue: 15.01.2026

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : ACTELIC SMOKE GENERATOR No. 20
Product code : UVP: DU00000341 Specification: 102D00000778

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-stance/Mixture : Insecticide
Recommended restrictions on use : For professional users only.

1.3 Details of the supplier of the safety data sheet

Company : 2022 Environmental Science FR SAS
Milton Hall, Ely Rd., Milton
CB24 6WZ Cambridge, United Kingdom
Telephone : 00800-1214-9451 (UK)
E-mail address of person responsible for the SDS : service.clients.es.france@envu.com

1.4 Emergency telephone number

+44 20 3807 3798

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - single exposure, Category 1, Central nervous system	H370: Causes damage to organs.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.

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Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

GB Harmonized System of Classification and Labelling of Chemicals (GB CLP)

Hazard pictograms : 

Signal word : Danger

Hazard statements : H302 + H332 Harmful if swallowed or if inhaled.
H351 Suspected of causing cancer.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P260 Do not breathe dust.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.

Response:
P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.

Disposal:
P501 Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ignites readily. Product burns without a flame to give a dense white harmful smoke.

Dust contact with the eyes can lead to mechanical irritation.

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Contact with dust can cause mechanical irritation or drying of the skin.
May form explosible dust-air mixture if dispersed.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Smoke generator (FU)

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Pirimiphos-methyl	29232-93-7 249-528-5 015-134-00-5 01-2120906297-52	Acute Tox. 4; H302 STOT RE 1; H372 (Nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1,000 M-Factor (Chronic aquatic toxicity): 1,000	22.5
Potassium chlorate	3811-04-9 223-289-7 017-004-00-3	Ox. Sol. 1; H271 Acute Tox. 3; H301	>= 10 - < 15
Isobutyl methyl ketone	108-10-1 203-550-1 606-004-00-4	Flam. Liq. 2; H225 Acute Tox. 4; H332 Eye Irrit. 2; H319 Carc. 2; H351 STOT SE 3; H335 STOT SE 3; H336	>= 0.245 - < 2.45
Substances with a workplace exposure limit :			
Kaolin	1332-58-7 310-194-1		>= 20 - < 30

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of 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.

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- 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).
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.
- 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 : If in eyes, rinse well with water.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Eye contact may provoke the following symptoms
eye redness
Eye irritation
Swelling of tissue
Skin contact may provoke the following symptoms:
Skin irritation
Blistering
Repeated exposure may cause skin dryness or cracking.
Ingestion may provoke the following symptoms:
cholinesterase inhibition
Nausea
Diarrhoea
Vomiting
The absorption of this product into the body may lead to the formation of methaemoglobine that, in sufficient concentration, causes cyanosis.
stomach discomfort
Nose bleeding
Inhalation may provoke the following symptoms:
Shortness of breath
Cough

No information available.
- Risks : Contact with dust can cause mechanical irritation or drying of the skin.

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Dust contact with the eyes can lead to mechanical irritation.

Harmful if swallowed or if inhaled.

Suspected of causing cancer.

Causes damage to organs.

Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : The product inhibits cholinesterase resulting in stimulation of the central nervous system, the parasympathetic nervous system, and the somatic motor nerves.
Symptoms of poisoning may not appear for several hours.
Keep under medical supervision for at least 48 hours.
ANTIDOTE: Atropine sulphate.
ANTIDOTE: Pralidoxime (Do not administer in case of carbamate poisoning).
In case of convulsions, a benzodiazepine (e.g. diazepam) should be given according to standard regimens.
Monitor: red blood cell and plasma cholinesterase.
No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Do not use a solid water stream as it may scatter and spread fire.
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
Sulphur oxides
Oxides of phosphorus
Chlorine compounds
Metal oxides

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5.3 Advice for firefighters

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

- Environmental precautions : Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Surround spill with absorbents and place a damp covering over the area to minimise entry of the material into the air. Add excess liquid to allow the material to enter into solution. Soak up with inert absorbent material. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. 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.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Technical measures : Static electricity may accumulate and ignite suspended dust causing an explosion.
Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
- Advice on safe handling : Do not breathe dust.
Do not swallow.
Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Minimize dust generation and accumulation.
Keep container closed when not in use.
Keep away from heat and sources of ignition.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.
- 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.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.
- Advice on common storage : Do not store with the following product types:
Strong oxidizing agents
Self-reactive substances and mixtures
Organic peroxides
Explosives
Gases

7.3 Specific end use(s)

- Specific use(s) : Refer to the label and/or leaflet.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

dust of any kind 10 mg/m³
Value type (Form of exposure): TWA (Inhalable)
Basis: GB EH40

4 mg/m³
Value type (Form of exposure): TWA (Respirable fraction)
Basis: GB EH40

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Kaolin	1332-58-7	TWA (Respirable dust)	2 mg/m ³	GB EH40
Isobutyl methyl ketone	108-10-1	STEL	100 ppm 416 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		TWA	50 ppm 208 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		TWA	20 ppm 83 mg/m ³	2000/39/EC
	Further information: Indicative			
		STEL	50 ppm 208 mg/m ³	2000/39/EC
	Further information: Indicative			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Isobutyl methyl ketone	108-10-1	4-methylpentan-2-one: 20 micromol per litre (Urine)	After shift	GB EH40 BAT

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
Pirimiphos-methyl	Workers	Inhalation	Long-term systemic effects	0.027 mg/m ³
	Workers	Skin contact	Long-term systemic effects	0.046 mg/kg bw/day

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	Consumers	Inhalation	Long-term systemic effects	0.005 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.017 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.002 mg/kg bw/day
Potassium chlorate	Workers	Inhalation	Long-term systemic effects	5.76 mg/m3
	Workers	Skin contact	Long-term systemic effects	3.5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.3 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.13 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.06 mg/kg bw/day
Isobutyl methyl ketone	Workers	Inhalation	Long-term systemic effects	83 mg/m3
	Workers	Inhalation	Acute systemic effects	208 mg/m3
	Workers	Inhalation	Long-term local effects	83 mg/m3
	Workers	Inhalation	Acute local effects	208 mg/m3
	Workers	Skin contact	Long-term systemic effects	11.8 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	14.7 mg/m3
	Consumers	Inhalation	Acute systemic effects	155.2 mg/m3
	Consumers	Inhalation	Long-term local effects	14.7 mg/m3
	Consumers	Inhalation	Acute local effects	155.2 mg/m3
	Consumers	Skin contact	Long-term systemic effects	4.2 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	4.2 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
Pirimiphos-methyl	Fresh water	0 mg/l
	Freshwater - intermittent	0 mg/l
	Marine water	0 mg/l
	Marine water - intermittent	0 mg/l
	Sewage treatment plant	4.5 mg/l
	Fresh water sediment	0.001 mg/kg dry weight (d.w.)
	Marine sediment	0 mg/kg dry weight (d.w.)
	Soil	0.419 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	1.33 mg/kg food
	Potassium chlorate	Fresh water

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	Marine water	1.15 mg/l
	Sewage treatment plant	115 mg/l
	Soil	3.83 mg/kg dry weight (d.w.)
Isobutyl methyl ketone	Fresh water	0.6 mg/l
	Freshwater - intermittent	1.5 mg/l
	Marine water	0.06 mg/l
	Sewage treatment plant	27.5 mg/l
	Fresh water sediment	8.27 mg/kg dry weight (d.w.)
	Marine sediment	0.83 mg/kg dry weight (d.w.)
	Soil	1.3 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Minimize workplace exposure concentrations.

Apply measures to prevent dust explosions.

Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment

Eye/face protection : Wear the following personal protective equipment:
Safety goggles
Equipment should conform to BS EN 166

Hand protection

Material : PVC
Guideline : Equipment should conform to BS EN 374

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. 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. Breakthrough time is not determined for the product. Change gloves often!

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).

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

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Filter should conform to BS EN 14387

Filter type : Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	powder
Colour	:	off-white
Odour	:	mild, characteristic
Odour 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	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Relative density	:	No data available
Density	:	No data available
Solubility(ies) Water solubility	:	partly soluble
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available

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Viscosity
Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

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

9.2 Other information

Particle size : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Dust can form an explosive mixture in air.
Can react with strong oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid : Avoid dust formation.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: 602.73 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 3.03 - 3.61 mg/l

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Assessment: The component/mixture is moderately toxic after short term inhalation.

Components:

Pirimiphos-methyl:

Acute oral toxicity : LD50 (Rat): 1,414 mg/kg
Method: OECD Test Guideline 401
Remarks: The test was conducted according to guideline

Acute inhalation toxicity : LC50 (Rat): > 5.04 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: The test was conducted equivalent or similar to guideline

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: The test was conducted according to guideline

Potassium chlorate:

Acute oral toxicity : Acute toxicity estimate (Humans): 100 mg/kg
Method: Expert judgement

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Isobutyl methyl ketone:

Acute oral toxicity : LD50 (Rat): 2,080 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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Kaolin:

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

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

Skin corrosion/irritation

Not classified based on available information.

Components:

Pirimiphos-methyl:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : The test was conducted according to guideline

Potassium chlorate:

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

Isobutyl methyl ketone:

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

Assessment : Repeated exposure may cause skin dryness or cracking.

Kaolin:

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

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Pirimiphos-methyl:

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

Potassium chlorate:

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

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Isobutyl methyl ketone:

Species : Human
Result : Irritation to eyes, reversing within 21 days

Kaolin:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Pirimiphos-methyl:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : The test was conducted according to guideline

Potassium chlorate:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : Based on data from similar materials

Isobutyl methyl ketone:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Pirimiphos-methyl:

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

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Result: negative
Remarks: The test was conducted according to guideline

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
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: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: The test was conducted according to guideline

Potassium chlorate:

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

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: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Method: OECD Test Guideline 482
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: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

Isobutyl methyl ketone:

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

Test Type: In vitro mammalian cell gene mutation test
Result: equivocal

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Test Type: Chromosome aberration test in vitro
Result: negative

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

Carcinogenicity

Suspected of causing cancer.

Components:

Pirimiphos-methyl:

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

Potassium chlorate:

Species : Rat
Application Route : Ingestion
Exposure time : 106 weeks
Result : negative
Remarks : Based on data from similar materials

Isobutyl methyl ketone:

Species : Rat
Application Route : inhalation (vapour)
Exposure time : 2 Years
Method : OECD Test Guideline 451
Result : positive

Species : Mouse
Application Route : inhalation (vapour)
Exposure time : 2 Years
Method : OECD Test Guideline 451
Result : positive

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Reproductive toxicity

Not classified based on available information.

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Components:

Pirimiphos-methyl:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: EPA OPP 83-4
Result: negative
Remarks: The test was conducted according to guideline

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

Potassium chlorate:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Isobutyl methyl ketone:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative

STOT - single exposure

Causes damage to organs (Central nervous system).

Product:

Target Organs : Central nervous system
Assessment : Shown to produce significant health effects in animals at concentrations of 10 mg/l/4h or less.

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Components:

Isobutyl methyl ketone:

Assessment : May cause drowsiness or dizziness.
Assessment : May cause respiratory irritation.
Remarks : Based on national or regional regulation.

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Components:

Pirimiphos-methyl:

Exposure routes : Ingestion
Target Organs : Nervous system
Assessment : Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

Repeated dose toxicity

Components:

Pirimiphos-methyl:

Species : Rat, female
NOAEL : 0.4 mg/kg
LOAEL : 4 mg/kg
Application Route : Ingestion
Exposure time : 90 Days
Method : OECD Test Guideline 408
Remarks : The test was conducted equivalent or similar to guideline

Potassium chlorate:

Species : Rat
NOAEL : > 100 mg/kg
Application Route : Ingestion
Exposure time : 90 Days
Remarks : Based on data from similar materials

Isobutyl methyl ketone:

Species : Rat
NOAEL : 250 mg/kg
LOAEL : 1,000 mg/kg
Application Route : Ingestion
Exposure time : 13 Weeks

Species : Rat
NOAEL : 4.106 mg/l
Application Route : inhalation (vapour)
Exposure time : 14 Weeks

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Aspiration toxicity

Not classified based on available information.

Components:

Isobutyl methyl ketone:

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Pirimiphos-methyl:

- | | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.404 mg/l
Exposure time: 96 h
Remarks: No test guideline followed |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 314 ng/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: The test was conducted according to guideline |
| Toxicity to algae/aquatic plants | : | NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.3 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: The test was conducted according to guideline |
| | | ErC50 (Raphidocelis subcapitata (freshwater green alga)): 3.38 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: The test was conducted according to guideline |
| M-Factor (Acute aquatic toxicity) | : | 1,000 |
| Toxicity to microorganisms | : | EC10 (Pseudomonas putida): > 4.5 mg/l
Exposure time: 6 h |
| | | EC50 (Pseudomonas putida): > 4.5 mg/l
Exposure time: 6 h |
| Toxicity to fish (Chronic toxicity) | : | NOEC: 0.02 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)
Method: OECD Test Guideline 204
Remarks: The test was conducted equivalent or similar to guideline |

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.05 µg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Remarks: The test was conducted equivalent or similar to guideline

M-Factor (Chronic aquatic toxicity) : 1,000

Potassium chlorate:

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

Toxicity to algae/aquatic plants : EC50 (Lemna minor (duckweed)): > 10 - 100 mg/l
Exposure time: 7 d
Method: OECD Test Guideline 221
Remarks: Based on data from similar materials

NOEC (Lemna minor (duckweed)): > 1 mg/l
Exposure time: 7 d
Method: OECD Test Guideline 221
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 : > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC: > 1 mg/l
Exposure time: 36 d
Species: Danio rerio (zebra fish)
Method: OECD Test Guideline 210
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Isobutyl methyl ketone:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 179 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 200 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 30 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Components:

Pirimiphos-methyl:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: The test was conducted according to guideline

Biodegradation Simulation Tests : Environmental Compartment: Fresh water
Value type: DT50
Value: 5.5 d

Isobutyl methyl ketone:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Components:

Pirimiphos-methyl:

Bioaccumulation : Species: Oryzias latipes (Orange-red killifish)
Bioconcentration factor (BCF): 1,276.9
Method: OECD Test Guideline 305
Remarks: The test was conducted according to guideline

Partition coefficient: n-octanol/water : log Pow: 4.2 (20 °C)
pH: 5 - 7
Method: OECD Test Guideline 107
Remarks: The test was conducted according to guideline

Isobutyl methyl ketone:

Partition coefficient: n-octanol/water : log Pow: 1.9

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12.4 Mobility in soil

Components:

Pirimiphos-methyl:

Distribution among environmental compartments : log K_{oc}: 3.37
Method: OECD Test Guideline 106
Remarks: The test was conducted according to guideline

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:

Endocrine disrupting potential : This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f) at levels of 0.1% or higher.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : 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.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Do not dispose of waste into sewer.

Residues of the biocidal product must be disposed of in accordance with the provisions of the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012), the Waste Framework Directive (WFD, Directive 2008/98/EC) and in the European Waste Catalogue (EWC) as well as in national and regional regulations.

Contaminated packaging : Follow advice on product label and/or leaflet. Empty containers retain residue and can be dangerous. Do not re-use empty containers.

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Waste Code : The following Waste Codes are only suggestions:

- used product
02 01 08*, agrochemical waste containing hazardous substances
- unused product
02 01 08*, agrochemical waste containing hazardous substances
- uncleaned packagings
15 01 10*, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number

ADN	: UN 3077
ADR	: UN 3077
RID	: UN 3077
IMDG	: UN 3077
IATA	: UN 3077

14.2 UN proper shipping name

ADN	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl)
ADR	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl)
RID	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl)
IMDG	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl)
IATA	: Environmentally hazardous substance, solid, n.o.s. (Pirimiphos-methyl)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADN	: 9	
ADR	: 9	
RID	: 9	

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IMDG : 9

IATA : 9

14.4 Packing group

ADN

Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9

ADR

Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID

Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

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Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17) : Not applicable

UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation : Not applicable

The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain) : Not applicable

Regulation (EU) No 2024/590 on substances that deplete the ozone layer : Not applicable

UK REACH List of substances subject to authorisation (Annex XIV) : Not applicable

GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation : Potassium chlorate

The Control of Explosives Precursors and Poisons Regulations (Poisons Act, as amended)

This product is regulated by the Poisons Act 1972 (as amended). All suspicious transactions, and significant disappearances and thefts must be reported. Potassium chlorate (Schedule 1A Part 1)

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

Active substance : 22.5 %
Pirimiphos-methyl

Control of Major Accident Hazards Regulations 2015 (COMAH)

E1	ENVIRONMENTAL	Quantity 1 100 t	Quantity 2 200 t
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H3	HAZARDS		
	STOT SPECIFIC TARGET	50 t	200 t
	ORGAN TOXICITY –		
	SINGLE EXPOSURE		

Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348)

Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No 2367)

Air Navigation Dangerous Goods Regulations 2002 (SI 2002 No 2786)

Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)

Chemical (Hazard Information and Packaging for Supply) (Northern Ireland) Regulations 2009

Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No 2677)

EH40 Occupational Exposure Limits - Table 1 List of approved workplace exposure limits

Control of Pesticide Regulations 1986

Dangerous Substances and Explosive Atmospheres Regulations 2002

Environmental Protection Act 1990, Part II

Environmental Protection (Duty of Care) Regulations 1991

The Waste Management Licensing Regulations 1994 (as amended)

Hazardous Waste Regulations 2005 (Replacing Special Waste Regulations 1996 as amended)

Landfill Directive

Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94)

Water Resources Act 1991

Anti-Pollution Works Regulations 1999

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

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

Full text of H-Statements

H225	: Highly flammable liquid and vapour.
H271	: May cause fire or explosion; strong oxidizer.
H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H319	: Causes serious eye irritation.
H332	: Harmful if inhaled.

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H335 : May cause respiratory irritation.
H336 : May cause drowsiness or dizziness.
H351 : Suspected of causing cancer.
H372 : Causes damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard
Carc. : Carcinogenicity
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
Ox. Sol. : Oxidizing solids
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
2000/39/EC : Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT : UK. Biological monitoring guidance values
2000/39/EC / TWA : Limit Value - eight hours
2000/39/EC / STEL : Short term exposure limit
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; GHS - Globally Harmonised 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 concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; RID - Regulations concerning the International Carriage of Dangerous

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Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; 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

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 Agency, <http://echa.europa.eu/>

Classification of the mixture:

Acute Tox. 4	H302
Acute Tox. 4	H332
Carc. 2	H351
STOT SE 1	H370
STOT RE 1	H372
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Calculation method
Based on product data or assessment
Calculation method
Based on product data or assessment
Calculation method
Calculation method
Calculation method

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.

GB / EN