

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



Butafosfan (<1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2025/01/31
3.0	2025/04/14	11504915-00003	Date of first issue: 2025/01/22

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Butafosfan (<1%) Formulation

Product code : Prevensa Megabic,Megabic,Prevensa Megabic Parent

Manufacturer or supplier's details

Company : MSD

Address : No. 485 Jing Tai Road
Pu Tuo District - Shanghai - China 200331

Telephone : +1-908-740-4000

Emergency telephone number : 86-571-87268110

E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use : Not applicable

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	: powder
Colour	: white
Odour	: No data available

May be harmful if swallowed. Causes skin irritation. Causes serious eye damage.

GHS Classification

Acute toxicity (Oral)	: Category 5
Skin corrosion/irritation	: Category 2
Serious eye damage/eye irritation	: Category 1

GHS label elements

Hazard pictograms	: 
Signal word	: Danger

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Hazard statements	: H303 May be harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage.
Precautionary statements	: Prevention: P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ eye protection/ face protection. Response: P301 + P332 + P317 IF SWALLOWED or if skin irritation occurs: Get medical help. P302 + P352 IF ON SKIN: Wash with plenty of water. P305 + P354 + P338 + P317 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help. P362 + P364 Take off contaminated clothing and wash it before reuse.

Physical and chemical hazards

Not classified based on available information.

Health hazards

May be harmful if swallowed. Causes skin irritation. Causes serious eye damage.

Environmental hazards

Not classified based on available information.

Other hazards which do not result in classification

May form explosive dust-air mixture during processing, handling or other means.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Calcium diformate	544-17-2	>= 30 -< 50
Phosphoric acid	7664-38-2	>= 10 -< 20
Citric acid	77-92-9	>= 1 -< 10
L-Malic acid	97-67-6	>= 1 -< 10
Fumaric acid	110-17-8	>= 1 -< 10
Formic acid	64-18-6	>= 2 -< 3
Butafosfan	17316-67-5	>= 0.1 -< 1

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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If inhaled	: advice.
	: 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 plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
	: Get medical attention.
	: Wash clothing before reuse.
	: Thoroughly clean shoes before reuse.
In case of eye contact	: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
	: If easy to do, remove contact lens, if worn.
	: Get medical attention immediately.
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	: May be harmful if swallowed.
	: Causes skin irritation.
	: Causes serious eye damage.
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 (CO ₂) Dry chemical
Unsuitable extinguishing media	: None known.
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. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	: Carbon oxides Metal oxides Oxides of phosphorus
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.
Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

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6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : 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.
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 : Sweep up or vacuum up spillage and collect in suitable container for disposal.
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.
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.

7. HANDLING AND STORAGE

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 : Use only with adequate ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Do not breathe dust.
Do not swallow.
Do not get in eyes.
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.
Take precautionary measures against static discharges.

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Avoidance of contact : Take care to prevent spills, waste and minimize release to the environment.
Oxidizing agents

Storage

Conditions for safe storage : Keep in properly labelled containers.
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

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Phosphoric acid	7664-38-2	PC-TWA	1 mg/m3	CN OEL
		PC-STEL	3 mg/m3	CN OEL
		TWA	1 mg/m3	ACGIH
		STEL	3 mg/m3	ACGIH
Formic acid	64-18-6	PC-TWA	10 mg/m3	CN OEL
		PC-STEL	20 mg/m3	CN OEL
		TWA	5 ppm	ACGIH

Engineering measures : All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

Personal protective equipment

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

Filter type : Combined particulates, acidic, inorganic gas/vapour and organic vapour type

Eye/face protection : Wear safety glasses with side shields or goggles.
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin and body protection : Work uniform or laboratory coat.
Additional body garments should be used based upon the

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task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
Use appropriate degowning techniques to remove potentially contaminated clothing.

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

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.
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Colour : white

Odour : No data available

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) : May form explosive dust-air mixture during processing, handling or other means.

Flammability (liquids) : Not applicable

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

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Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Relative density	:	No data available
Density	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition 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.
Molecular weight	:	No data available
Particle characteristics		
Particle size	:	No data available

10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	May form explosive dust-air mixture during processing, handling or other means. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks. Avoid dust formation.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Exposure routes	:	Inhalation Skin contact Ingestion Eye contact
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Acute toxicity

May be harmful if swallowed.

Product:

Acute oral toxicity	: Acute toxicity estimate: 2,725 mg/kg Method: Calculation method
Acute inhalation toxicity	: Acute toxicity estimate: > 40 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method

Components:

Calcium diformate:

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

Phosphoric acid:

Acute oral toxicity	: LD50 (Rat): 2,000 mg/kg Method: OECD Test Guideline 423
Acute inhalation toxicity	: Assessment: Corrosive to the respiratory tract.

Citric acid:

Acute oral toxicity	: LD50 (Mouse): 5,400 mg/kg
Acute dermal toxicity	: LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

L-Malic acid:

Acute oral toxicity	: LD50 (Rat): > 2,000 mg/kg Remarks: Based on data from similar materials
Acute dermal toxicity	: LD50 (Rat): > 5,000 mg/kg Remarks: Based on data from similar materials

Fumaric acid:

Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity	: LC50 (Rat): > 1.306 mg/l

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Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

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

Formic acid:

Acute oral toxicity : Acute toxicity estimate (Humans): 500 mg/kg
Method: Expert judgement

Acute inhalation toxicity : LC50 (Rat): 7.4 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: Corrosive to the respiratory tract.

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

Butafosfan:

Acute oral toxicity : LD50 (Mouse): 16,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:

Calcium diformate:

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

Phosphoric acid:

Result : Corrosive after 3 minutes to 1 hour of exposure
Remarks : Based on national or regional regulation.

Citric acid:

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

L-Malic acid:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

Fumaric acid:

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

Formic acid:

Result	: Corrosive after 3 minutes or less of exposure
Remarks	: Based on extreme pH

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Calcium diformate:

Species	: Rabbit
Result	: Irreversible effects on the eye
Method	: OECD Test Guideline 405

Phosphoric acid:

Species	: Rabbit
Result	: Irreversible effects on the eye

Citric acid:

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

L-Malic acid:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days
Method	: OECD Test Guideline 405
Remarks	: Based on data from similar materials

Fumaric acid:

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

Formic acid:

Result	: Irreversible effects on the eye
Remarks	: Based on skin corrosivity.

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

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Respiratory sensitisation

Not classified based on available information.

Components:

Calcium diformate:

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

L-Malic acid:

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

Fumaric acid:

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

Formic acid:

Test Type	: Buehler 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:

Calcium diformate:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	: Test Type: Sex-linked recessive lethal test in Drosophila melanogaster (in vivo) Application Route: Ingestion Result: negative

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Remarks: Based on data from similar materials

Phosphoric acid:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

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

Citric acid:

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

Test Type: in vitro micronucleus test
Result: positive

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

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow
cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: Ingestion
Result: negative

L-Malic acid:

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

Test Type: Chromosome aberration test in vitro
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

Fumaric acid:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476

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Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

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

Formic acid:

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

Genotoxicity in vivo : Test Type: Sex-linked recessive lethal test in Drosophila melanogaster (in vivo)
Application Route: Ingestion
Method: OECD Test Guideline 477
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Formic acid:

Species : Rat
Application Route : Ingestion
Exposure time : 104 weeks
Result : negative
Remarks : Based on data from similar materials

Reproductive toxicity

Not classified based on available information.

Components:

Calcium diformate:

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: Rabbit
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

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Phosphoric acid:

Effects on fertility	: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on foetal development	: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative

Citric acid:

Effects on foetal development	: Test Type: One-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative
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L-Malic acid:

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

Formic acid:

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: Rabbit Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative

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Remarks: Based on data from similar materials

STOT - single exposure

Not classified based on available information.

Components:

Citric acid:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

Calcium diformate:

Species	: Rat
NOAEL	: 3,000 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks
Method	: OECD Test Guideline 408
Remarks	: Based on data from similar materials

Phosphoric acid:

Species	: Rat
NOAEL	: 250 mg/kg
Application Route	: Ingestion
Exposure time	: 40 - 52 Days
Method	: OECD Test Guideline 422

Citric acid:

Species	: Rat
NOAEL	: 4,000 mg/kg
LOAEL	: 8,000 mg/kg
Application Route	: Ingestion
Exposure time	: 10 Days

L-Malic acid:

Species	: Rat
NOAEL	: > 100 mg/kg
Application Route	: Ingestion
Exposure time	: 104 Weeks
Remarks	: Based on data from similar materials

Fumaric acid:

Species	: Rat
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NOAEL	: 600 mg/kg
Application Route	: Ingestion
Exposure time	: 2 yr

Formic acid:

Species	: Rat
NOAEL	: 400 mg/kg
Application Route	: Ingestion
Exposure time	: 52 Weeks
Remarks	: Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Calcium diformate:

Toxicity to fish	: LC0 (Danio rerio (zebra fish)): >= 1,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h Method: EPA-660/3-75-009 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l Exposure time: 72 h Remarks: Based on data from similar materials NOEC (Pseudokirchneriella subcapitata (green algae)): 500 mg/l Exposure time: 72 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): >= 100 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: Based on data from similar materials
Toxicity to microorganisms	: NOEC: >= 22.1 mg/l Exposure time: 28 d Remarks: Based on data from similar materials

Phosphoric acid:

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Toxicity to fish	: LC50 (<i>Oryzias latipes</i> (Japanese medaka)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (<i>Daphnia magna</i> (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (<i>Desmodesmus subspicatus</i> (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (<i>Desmodesmus subspicatus</i> (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	: EC50: > 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials

Citric acid:

Toxicity to fish	: LC50 (<i>Pimephales promelas</i> (fathead minnow)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (<i>Daphnia magna</i> (Water flea)): 1,535 mg/l Exposure time: 24 h

L-Malic acid:

Toxicity to fish	: LC50 (<i>Danio rerio</i> (zebra fish)): > 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 (<i>Daphnia magna</i> (Water flea)): > 100 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	: ErC50 (<i>Pseudokirchneriella subcapitata</i> (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Neutralised product Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (<i>Pseudokirchneriella subcapitata</i> (green algae)): > 1 mg/l Exposure time: 72 h Test substance: Neutralised product Method: OECD Test Guideline 201

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	Remarks: Based on data from similar materials
Toxicity to microorganisms	: EC50 (activated sludge): > 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials

Fumaric acid:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	: EC50: > 300 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Formic acid:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): 130 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)): 365 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,240 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials EC10 (Pseudokirchneriella subcapitata (green algae)): 295 mg/l Exposure time: 72 h

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	Method: OECD Test Guideline 201
	Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	: NOEC: 72 mg/l Exposure time: 13 d

Butafosfan:

Ecotoxicology Assessment

Acute aquatic toxicity	: Toxic effects cannot be excluded
Chronic aquatic toxicity	: Toxic effects cannot be excluded

Persistence and degradability

Components:

Calcium diformate:

Biodegradability	: Result: Readily biodegradable. Biodegradation: 86 % Exposure time: 28 d Method: OECD Test Guideline 306 Remarks: Based on data from similar materials
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Citric acid:

Biodegradability	: Result: Readily biodegradable. Biodegradation: 97 % Exposure time: 28 d Method: OECD Test Guideline 301B
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Fumaric acid:

Biodegradability	: Result: Readily biodegradable. Biodegradation: 67.5 % Exposure time: 28 d Method: OECD Test Guideline 301B
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Formic acid:

Biodegradability	: Result: Readily biodegradable. Biodegradation: 100 % Exposure time: 28 d Method: OECD Test Guideline 301C
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Bioaccumulative potential

Components:

Calcium diformate:

Partition coefficient: n-octanol/water	: log Pow: -2.3 - -1.9
Remarks: Based on data from similar materials	

Citric acid:

Partition coefficient: n-octanol/water	: log Pow: -1.72
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L-Malic acid:

Partition coefficient: n-octanol/water	: log Pow: -1.68
Remarks: Calculation	

Fumaric acid:

Partition coefficient: n-octanol/water	: log Pow: 0.46
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Formic acid:

Partition coefficient: n-octanol/water	: log Pow: -2.1
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Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

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

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	: UN 3453
Proper shipping name	: PHOSPHORIC ACID, SOLID MIXTURE
Class	: 8
Packing group	: III
Labels	: 8
Environmentally hazardous	: no

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IATA-DGR

UN/ID No.	: UN 3453
Proper shipping name	: Phosphoric acid, solid Mixture
Class	: 8
Packing group	: III
Labels	: Corrosive
Packing instruction (cargo aircraft)	: 864
Packing instruction (passenger aircraft)	: 860

IMDG-Code

UN number	: UN 3453
Proper shipping name	: PHOSPHORIC ACID, SOLID MIXTURE
Class	: 8
Packing group	: III
Labels	: 8
EmS Code	: F-A, S-B
Marine pollutant	: no

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

Not applicable for product as supplied.

National Regulations

GB 6944/12268

UN number	: UN 3453
Proper shipping name	: PHOSPHORIC ACID, SOLID MIXTURE
Class	: 8
Packing group	: III
Labels	: 8
Marine pollutant	: no

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.

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals	: This product is not listed in the catalogue of hazardous chemicals, but it meets the definition of hazardous chemicals and its principles of determination.
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Identification of Major Hazard Installations for Hazardous Chemicals (GB : Not listed

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Hazardous Chemicals for Priority Management under SAWS : Not listed

Catalogue of Specially Controlled Hazardous Chemicals : Not listed

List of Explosive Precursors : Not listed

Regulations on Labour Protection in Workplaces where Toxic Substances are Used

Catalogue of Highly Toxic Chemicals : Not listed

Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

China Severely Restricted Toxic Chemicals for Import and Export : Not listed

Regulation on the Administration of Precursor Chemicals

Catalogue and Classification of Precursor Chemicals : Not listed

Yangtze River Protection Law

This product does not contain any dangerous chemicals prohibited for inland river transport.

Regulations of Ozone Depleting Substances Management

List of Controlled Ozone Depleting Substances Import and Export : Not listed

List of Controlled Ozone Depleting Substances : Not listed

Environmental Protection Law

List of Priority Controlled Chemicals : Not listed

List of Key Controlled New Pollutants : Not listed

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

AICS : not determined

DSL : not determined

IECSC : not determined

16. OTHER INFORMATION

Revision Date : 2025/04/14

Further information

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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/>

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)
CN OEL : Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
CN OEL / PC-TWA : Permissible concentration - time weighted average
CN OEL / PC-STEEL : Permissible concentration - short term exposure limit

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 concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; 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

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Disclaimer

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