

**Butafosfan (<1%) Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 31.01.2025
3.0	14.04.2025	11504912-00003	Date of first issue: 22.01.2025

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**SECTION 1. IDENTIFICATION**

Product identifier : Butafosfan (<1%) Formulation

Product code : Prevensa Megabic, Megabic, Prevensa Megabic Parent

**Manufacturer or supplier's details**

Company : MSD

Address : Rua Coronel Bento Soares, 530  
Cruzeiro - Sao Paulo - Brazil CEP 12730-340

Telephone : 908-740-4000

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

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

Recommended use : Veterinary product

Restrictions on use : Not applicable

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**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification in accordance with ABNT NBR 14725 Standard**

Acute toxicity (Oral) : Category 5

Skin irritation : Category 2

Serious eye damage : Category 1

**GHS label elements in accordance with ABNT NBR 14725 Standard**

Hazard pictograms :



Signal Word : Danger

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:**

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P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.  
 P302 + P352 IF ON SKIN: Wash with plenty of water.  
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
 P362 + P364 Take off contaminated clothing and wash it before reuse.

**Other hazards which do not result in classification**

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

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

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Calcium diformate	544-17-2	Acute Tox. (Oral), 5 Eye Dam., 1	$\geq 30$ -< 50
Phosphoric acid	7664-38-2	Met. Corr., 1 Acute Tox. (Oral), 4 Skin Corr., 1B Eye Dam., 1	$\geq 10$ -< 20
Citric acid	77-92-9	Eye Irrit., 2A STOT SE, 3	$\geq 5$ -< 10
L-Malic acid	97-67-6	Acute Tox. (Oral), 5 Eye Irrit., 2A	$\geq 5$ -< 10
Fumaric acid	110-17-8	Eye Irrit., 2A	$\geq 5$ -< 10
Formic acid	64-18-6	Flam. Liq., 3 Met. Corr., 1 Acute Tox. (Oral), 4 Acute Tox. (Inhalation), 3 Skin Corr., 1A Eye Dam., 1	$\geq 2$ -< 3
Butafosfan	17316-67-5		$\geq 0,1$ -< 1

**SECTION 4. FIRST AID MEASURES**

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.

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If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	In case of contact, immediately flush skin with 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.

**SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) 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 fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

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|---|---|--|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).   |
| Environmental precautions   | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Retain and dispose of contaminated wash water.<br>Local authorities should be advised if significant spillages cannot be contained.  |
| Methods and materials for containment and cleaning up               | : | Sweep up or vacuum up spillage and collect in suitable container for disposal.<br>Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).<br>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.<br>Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. |

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**SECTION 7. HANDLING AND STORAGE**

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|-------------------------|---|--|
| Technical measures      | : | Static electricity may accumulate and ignite suspended dust causing an explosion.<br>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.<br>Do not breathe dust.<br>Do not swallow.<br>Do not get in eyes.<br>Wash skin thoroughly after handling.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Keep container tightly closed.<br>Minimize dust generation and accumulation.<br>Keep container closed when not in use.<br>Keep away from heat and sources of ignition.<br>Take precautionary measures against static discharges.<br>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.<br>When using do not eat, drink or smoke.<br>Wash contaminated clothing before re-use.<br>The effective operation of a facility should include review of engineering controls, proper personal protective equipment,   |

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appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

Conditions for safe storage : Keep in properly labeled 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

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Phosphoric acid	7664-38-2	TWA	1 mg/m³	ACGIH
		STEL	3 mg/m³	ACGIH
Formic acid	64-18-6	LT	4 ppm 7 mg/m³	BR OEL
Further information: Degree of harmfulness: medium				
		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/vapor and organic vapor type

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

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

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contaminated clothing.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	:	powder
Color	:	white
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	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
Vapor pressure	:	Not applicable
Relative vapor 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
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive

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Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle characteristics	:	
Particle size	:	No data available

**SECTION 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.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure	:	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
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Acute inhalation toxicity	:	Acute toxicity estimate: > 40 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
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**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

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**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 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 judgment
Acute inhalation toxicity	: LC50 (Rat): 7,4 mg/l Exposure time: 4 h Test atmosphere: vapor Assessment: Corrosive to the respiratory tract.
Acute dermal toxicity	: LD50 (Rat): > 2.000 mg/kg Remarks: Based on data from similar materials

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Acute oral toxicity	: LD50 (Mouse): 16.000 mg/kg
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**Skin corrosion/irritation**

Causes skin irritation.



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**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:**

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

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**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 sensitization****Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Calcium diformate:**

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

**L-Malic acid:**

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

**Fumaric acid:**

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

**Formic acid:**

Test Type	: Buehler Test
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Routes of exposure	: 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 <i>Drosophila melanogaster</i> (in vivo) Application Route: Ingestion Result: negative 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
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**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)
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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  
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

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Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative  
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative  
Remarks: Based on data from similar materials

**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 fetal 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 fetal development : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

**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 fetal development : Test Type: Embryo-fetal 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

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Effects on fetal development	Result: negative
	Remarks: Based on data from similar materials
	Test Type: Embryo-fetal development
	Species: Rabbit
	Application Route: Ingestion
	Method: OECD Test Guideline 414
Result: negative	
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

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Remarks : Based on data from similar materials

**Fumaric acid:**

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

**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.

**SECTION 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

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**Phosphoric acid:**

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

**Citric acid:**

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|---|---|--|
| Toxicity to fish                                    | : | LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 1.535 mg/l<br>Exposure time: 24 h           |

**L-Malic acid:**

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|---|---|---|
| Toxicity to fish                                    | : | LC50 (Danio rerio (zebra fish)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>Remarks: Based on data from similar materials  |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h<br>Remarks: Based on data from similar materials   |
| Toxicity to algae/aquatic plants                    | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Test substance: Neutralized product<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials<br><br>NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l<br>Exposure time: 72 h<br>Test substance: Neutralized product<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials |



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3.0	14.04.2025	11504912-00003	Date of first issue: 22.01.2025

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  
 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

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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

**Citric acid:**

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

**Fumaric acid:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 67,5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**Formic acid:**

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

**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

**SECTION 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.

**SECTION 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

**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

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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.

**Domestic regulation****ANTT**

UN number	:	UN 3453
Proper shipping name	:	PHOSPHORIC ACID, SOLID, MIXTURE
Class	:	8
Packing group	:	III
Labels	:	8
Hazard Identification Number	:	80

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

National List of Carcinogenic Agents for Humans - (LINACH) : Not applicable

Brazil. List of chemicals controlled by the Federal Police : Phosphoric acid

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

AICS : not determined

DSL : not determined

IECSC : not determined

**SECTION 16. OTHER INFORMATION**

Revision Date	:	14.04.2025
Date format	:	dd.mm.yyyy

**Further information**

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, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>
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Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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**Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
BR OEL : Brazil. NR 15 - Unhealthy activities and operations

ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
BR OEL / LT : Up to 48 hours /week

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; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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

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