Miravit Lactacid

Version number: 1.0 First version: 2017-09-29

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

1.1 Product identifier

Trade name **Miravit Lactacid**

Registration number (REACH) not relevant (mixture)

CAS number not relevant (mixture)

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

Relevant identified uses Premixture

1.3 Details of the supplier of the safety data sheet

VitaVis GmbH
Industrieweg 110
48155 Münster
Germany

Telephone: +49-(0)251-682-1144
Telefax: +49-(0)251-682-2008

e-mail (competent person) sdb@csb-online.de

Please do not use this e-mail adress to ask for the latest safety data sheet. For this purpose contact VitaVis GmbH - MiraVit (Logo).

1.4 Emergency telephone number

As above or next toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard state-ment
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

for full text of abbreviations: see SECTION 16

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word danger

Pictograms

GHS05

Hazard statements

H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311	Call a POISON CENTER/doctor.
P362	Take off contaminated clothing and wash it before reuse.

Hazardous ingredients for labelling hexa-2,4-dienoic acid, lactic acid, formic acid

2.3 Other hazards

There is no additional information.

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Hazardous ingredients acc. to GHS

Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Specific Conc. Limits
lactic acid	CAS No 50-21-5 EC No 200-018-0 REACH Reg. No 01-2119548400-48-xxxx	20 – 30	Skin Irrit. 2 / H315 Eye Dam. 1 / H318		Skin Irrit. 2; H315: C ≥ 10 % Eye Dam. 1; H318: C ≥ 3 % Eye Irrit. 2; H319: 1 % ≤ C < 3 %

Hazardous ingredients acc. to GHS

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Specific Conc. Limits
formic acid	CAS No 64-18-6 EC No 200-579-1 Index No 607-001-00-0 REACH Reg. No 01-2119491174-37-xxxx	10 – 20	Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Acute Tox. 3 / H331 Skin Corr. 1A / H314 Eye Dam. 1 / H318		Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 10 % ≤ C < 90 % Skin Irrit. 2; H315: 2 % ≤ C < 10 % Eye Dam. 1; H318: C ≥ 10 % Eye Irrit. 2; H319: 2 % ≤ C < 10 %
fumaric acid	CAS No 110-17-8 EC No 203-743-0 Index No 607-146-00-X	5 – 15	Eye Irrit. 2 / H319		
hexa-2,4-dienoic acid	CAS No 110-44-1 EC No 203-768-7	1 – 5	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335		
citric acid	CAS No 77-92-9 EC No 201-069-1 REACH Reg. No 01-2119457026-42-xxxx	1 – 5	Eye Irrit. 2 / H319		

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off immediately all contaminated clothing.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.

Following eye contact

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and easy to do. Continue rinsing.

Following ingestion

Rinse mouth immediately and drink plenty of water.
Do NOT induce vomiting.
Get medical advice/attention.

Notes for the doctor

none

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage.
Irritating to skin.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.
Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO_2), pyrolysis products, toxic, irritant vapors / gases

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Co-ordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

self-contained breathing apparatus (EN 133)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Do not get in eyes, on skin, or on clothing.
Avoid breathing dust.
Control of dust.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Knock down dust with water spray.
Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

take up mechanically

Advices on how to clean up a spill

Collect spillage.
Product residues, To clean the floor and all objects contaminated by this material, use plenty of water.

Other information relating to spills and releases

Place in appropriate containers for disposal.
Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Keep away from sources of ignition - No smoking.
Removal of dust deposits.

Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

Handling of incompatible substances or mixtures

Do not mix with alkali.
Do not mix with reducing agents.
Do not mix with oxidiser

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Removal of dust deposits.

Flammability hazards

None.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

heat

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Keep container tightly closed and in a well-ventilated place.
Keep in a cool place.
Store in a dry place.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m³]	Source
EU	formic acid	64-18-6		IOELV	5	9	2006/15/EC
GB	dust		i	WEL		10	EH40/2005
GB	dust		r	WEL		4	EH40/2005
GB	silica, amorphous	112926-00-8	i	WEL		6	EH40/2005
GB	silica, amorphous	112926-00-8	r	WEL		2.4	EH40/2005
GB	silica, crystalline	14808-60-7	r	WEL		0.1	EH40/2005
GB	glycerol	56-81-5	mist	WEL		10	EH40/2005
GB	propane-1,2-diol	57-55-6	particle	WEL		10	EH40/2005
GB	propane-1,2-diol	57-55-6	vp	WEL	150	474	EH40/2005
GB	formic acid	64-18-6		WEL	5	9.6	EH40/2005

Notation

i	inhalable fraction
mist	as mists
particle	as airborne particles
r	respirable fraction
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average
vp	as vapours and particulates

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
formic acid	64-18-6	DNEL	9.5 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
fumaric acid	110-17-8	DNEL	175 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
fumaric acid	110-17-8	DNEL	50 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
hexa-2,4-dienoic acid	110-44-1	DNEL	17.63 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
hexa-2,4-dienoic acid	110-44-1	DNEL	40 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
lactic acid	50-21-5	PNEC	1.3 $^{mg}/_{l}$	freshwater
lactic acid	50-21-5	PNEC	10 $^{mg}/_{l}$	sewage treatment plant (STP)
formic acid	64-18-6	PNEC	2 $^{mg}/_{l}$	freshwater
formic acid	64-18-6	PNEC	0.2 $^{mg}/_{l}$	marine water
formic acid	64-18-6	PNEC	7.2 $^{mg}/_{l}$	sewage treatment plant (STP)
formic acid	64-18-6	PNEC	13.4 $^{mg}/_{kg}$	freshwater sediment
formic acid	64-18-6	PNEC	1.34 $^{mg}/_{kg}$	marine sediment
formic acid	64-18-6	PNEC	1.5 $^{mg}/_{kg}$	soil
formic acid	64-18-6	PNEC	1 $^{mg}/_{l}$	water
fumaric acid	110-17-8	PNEC	0.1 $^{mg}/_{l}$	freshwater
fumaric acid	110-17-8	PNEC	0.01 $^{mg}/_{l}$	marine water
fumaric acid	110-17-8	PNEC	3 $^{mg}/_{l}$	sewage treatment plant (STP)
fumaric acid	110-17-8	PNEC	1 $^{mg}/_{l}$	water
hexa-2,4-dienoic acid	110-44-1	PNEC	0.129 $^{mg}/_{l}$	freshwater
hexa-2,4-dienoic acid	110-44-1	PNEC	0.013 $^{mg}/_{l}$	marine water
hexa-2,4-dienoic acid	110-44-1	PNEC	0.241 $^{mg}/_{l}$	water
hexa-2,4-dienoic acid	110-44-1	PNEC	10 $^{mg}/_{l}$	sewage treatment plant (STP)
hexa-2,4-dienoic acid	110-44-1	PNEC	0.465 $^{mg}/_{kg}$	freshwater sediment
hexa-2,4-dienoic acid	110-44-1	PNEC	0.046 $^{mg}/_{kg}$	marine sediment
hexa-2,4-dienoic acid	110-44-1	PNEC	5 $^{mg}/_{kg}$	soil
citric acid	77-92-9	PNEC	0.44 $^{mg}/_{l}$	freshwater

Relevant PNECs of components of the mixture				
Name of substance	**CAS No**	**Endpoint**	**Threshold level**	**Environmental compartment**
citric acid	77-92-9	PNEC	0.044 $^{mg}/_{l}$	marine water
citric acid	77-92-9	PNEC	1,000 $^{mg}/_{l}$	sewage treatment plant (STP)
citric acid	77-92-9	PNEC	34.6 $^{mg}/_{kg}$	freshwater sediment
citric acid	77-92-9	PNEC	3.46 $^{mg}/_{kg}$	marine sediment
citric acid	77-92-9	PNEC	33.1 $^{mg}/_{kg}$	soil

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

Material	Material thickness	Breakthrough times of the glove material
no information available	no information available	no information available

Wear suitable gloves.
Chemical protection gloves are suitable, which are tested according to EN 374.
Check leak-tightness/impermeability prior to use.
In the case of wanting to use the gloves again, clean them before taking off and air them well.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid
Form	powder
Colour	white - beige
Odour	stinging
Odour threshold	these information are not available

Other safety parameters

pH (value)	2.5 – 3.5 (50 $^{g}/_{l}$)
Melting point/freezing point	these information are not available
Initial boiling point and boiling range	these information are not available
Flash point	not applicable
Evaporation rate	these information are not available
Flammability (solid, gas)	this material is combustible, but will not ignite readily
Explosion limits of dust clouds	not determined
Vapour pressure	these information are not available
Density	these information are not available
Vapour density	these information are not available
Bulk density	550 – 650 $^{g}/_{cm^3}$
Relative density	these information are not available

Solubility(ies)

Water solubility	partially soluble

Partition coefficient

n-octanol/water (log KOW)	these information are not available
Auto-ignition temperature	not relevant (Solid matter)
Relative self-ignition temperature for solids	these information are not available
Decomposition temperature	these information are not available

Viscosity

Kinematic viscosity	not relevant (solid matter)
Dynamic viscosity	not relevant (solid matter)
Explosive properties	not explosive
Oxidising properties	shall not be classified as oxidising

9.2 Other information

None

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Strong exothermic reaction with strong alkalis, Oxidiser.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

acids, bases, oxidisers, reducing agents, metal

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

As a result of heating:

irritant vapors / gases

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification procedure

If not otherwise specified the classification is based on:
Ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
formic acid	64-18-6	oral	730 $^{mg}/_{kg}$
formic acid	64-18-6	inhalation: vapour	7.85 $^{mg}/_{l}$/4h

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	End-point	Value	Species	Method	Source
lactic acid	50-21-5	oral	LD50	3,543 $^{mg}/_{kg}$	rat, female	EPA OPP 81-1	ECHA
lactic acid	50-21-5	inhalation: dust/mist	LC50	>7.94 $^{mg}/_{l}$/4h	rat	OECD Guideline 403	ECHA
lactic acid	50-21-5	dermal	LD50	>2,000 $^{mg}/_{kg}$	rabbit	EPA OPP 81-2	ECHA
formic acid	64-18-6	oral	LD50	730 $^{mg}/_{kg}$	rat	OECD Guideline 401	ECHA
formic acid	64-18-6	inhalation: vapour	LC50	7.85 $^{mg}/_{l}$/4h	rat	OECD Guideline 403	ECHA
fumaric acid	110-17-8	oral	LD50	7,200 – 15,800 $^{mg}/_{kg}$	rat, male	OECD Guideline 401	ECHA
fumaric acid	110-17-8	inhalation: dust/mist	LC50	>1.306 $^{mg}/_{l}$/4h	rat	OECD Guideline 403	ECHA
fumaric acid	110-17-8	dermal	LD50	20,000 $^{mg}/_{kg}$	rabbit, female	OECD Guideline 402	ECHA
hexa-2,4-dienoic acid	110-44-1	oral	LD50	12,500 $^{mg}/_{kg}$	rat		ECHA

Acute toxicity of components of the mixture							
Name of substance	**CAS No**	**Expos-ure route**	**End-point**	**Value**	**Species**	**Method**	**Source**
hexa-2,4-dienoic acid	110-44-1	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat	OECD Guideline 402	ECHA
citric acid	77-92-9	oral	LD50	5,400 $^{mg}/_{kg}$	mouse	OECD 401	ECHA
citric acid	77-92-9	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat	OECD 402	ECHA

Skin corrosion/irritation

Causes skin irritation.

(Manufacturer, Data on similar mixtures were used)

Serious eye damage/eye irritation

Causes serious eye damage.

(Manufacturer, OECD Guideline 438, Data on similar mixtures were used)

Respiratory or skin sensitisation

Skin sensitisation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitisation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Reproductive toxicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Test data are not available for the complete mixture.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
lactic acid	50-21-5	LC50	130 mg/l	rainbow trout (Oncorhynchus mykiss)		ECHA	96 h
lactic acid	50-21-5	EC50	250 mg/l	daphnia magna	OECD Guideline 202	ECHA	48 h
formic acid	64-18-6	EC50	1,240 mg/l	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
formic acid	64-18-6	EC50	365 mg/l	daphnia magna	OECD Guideline 202	ECHA	48 h
formic acid	64-18-6	LC50	130 mg/l	zebra fish (Danio rerio)	OECD Guideline 203	ECHA	96 h
fumaric acid	110-17-8	LC50	>100 mg/l	zebra fish (danio rerio)	OECD Guideline 203	ECHA	96 h
fumaric acid	110-17-8	EC50	212 mg/l	daphnia magna		ECHA	48 h
fumaric acid	110-17-8	ErC50	>100 mg/l	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	LC50	75 mg/l	japanese rice-fish/medaka (Oryzias latipes)	OECD Guideline 203	ECHA	96 h
hexa-2,4-dienoic acid	110-44-1	EC50	70 mg/l	daphnia magna	OECD Guideline 202	ECHA	48 h

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
hexa-2,4-dienoic acid	110-44-1	ErC50	77 mg/l	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	EbC50	24.1 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	EbC50	69 mg/l	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
citric acid	77-92-9	LC50	440 mg/l	orfe (Leuciscus idus)	OECD 203	ECHA	48 h
citric acid	77-92-9	LC50	760 mg/l	orfe (Leuciscus idus)		ECHA	48 h
citric acid	77-92-9	LC50	1,535 mg/l	daphnia magna		ECHA	24 h

Aquatic toxicity (chronic)

Test data are not available for the complete mixture.

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
formic acid	64-18-6	NOEC	100 mg/l	daphnia magna	OECD Guideline 211	ECHA	21 d
formic acid	64-18-6	LOEC	>100 mg/l	daphnia magna	OECD Guideline 211	ECHA	21 d
fumaric acid	110-17-8	NOEC	100 mg/l	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	LC50	>50 mg/l	daphnia magna	OECD Guideline 211	ECHA	21 d
hexa-2,4-dienoic acid	110-44-1	EC50	>50 mg/l	daphnia magna	OECD Guideline 211	ECHA	21 d
hexa-2,4-dienoic acid	110-44-1	NOEC	50 mg/l	daphnia magna	OECD Guideline 211	ECHA	21 d

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
hexa-2,4-dienoic acid	110-44-1	NOEC	6.47 $^{mg}/_{l}$	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	NOEC	56 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	NOEC	32 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA	72 h
hexa-2,4-dienoic acid	110-44-1	LOEC	>50 $^{mg}/_{l}$	daphnia magna	OECD Guideline 211	ECHA	21 d

12.2 Persistence and degradability

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
lactic acid	50-21-5	oxygen depletion	67 %	20 d		ECHA
formic acid	64-18-6	oxygen depletion	95 %	20 d	OECD Guideline 301 C	ECHA
formic acid	64-18-6	DOC removal	98 %	14 d	EU method C.4-B	ECHA
fumaric acid	110-17-8	carbon dioxide generation	67.5 %	28 d	OECD Guideline 301	ECHA
hexa-2,4-dienoic acid	110-44-1	oxygen depletion	74.9 %	28 d		ECHA

Biodegradation

The relevant substances of the mixture are readily biodegradable.

Persistence

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW
formic acid	64-18-6		-0.54 (25 °C)
fumaric acid	110-17-8		0.46 (20 °C)
hexa-2,4-dienoic acid	110-44-1	2.6	1.32 (pH value: 2.5)
citric acid	77-92-9		-1.8 – -0.2

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

Data are not available.

Endocrine disrupting potential

None of the ingredients are listed.

Remarks

Water hazard class - WHC (Wassergefährdungsklasse): 1

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	**UN number**	not subject to transport regulations
14.2	**UN proper shipping name**	-
14.3	**Transport hazard class(es)**	
	Class	-
14.4	**Packing group**	-
14.5	**Environmental hazards**	non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

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

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

Not subject to ADR, RID and ADN.

International Maritime Dangerous Goods Code (IMDG)

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR)

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)

Name of substance	Name acc. to inventory	Type of registration	Restriction	No
formic acid	flammable / pyrophoric	1907/2006/EC annex XVII	R40	40

Legend

R40 1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
- metallic glitter intended mainly for decoration,
- artificial snow and frost,
- 'whoopee' cushions,
- silly string aerosols,

Legend

- imitation excrement,
- horns for parties,
- decorative flakes and foams,
- artificial cobwebs,
- stink bombs.

2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
'For professional users only'.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

List of substances subject to authorisation (REACH, Annex XIV)

none of the ingredients are listed

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

none of the ingredients are listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

none of the ingredients are listed

Regulation 98/2013/EU on the marketing and use of explosives precursors

none of the ingredients are listed

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2006/15/EC	Comission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)

Abbr.	Descriptions of used abbreviations
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
log KOW	n-Octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Abbr.	Descriptions of used abbreviations
WEL	Workplace exposure limit

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.
Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties.
Health hazards.
Environmental hazards.
The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.