

Phree Up

Version number: 1.0

SECTION 1: Identification

1.1 Product identifier

Trade name Phree Up

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

Relevant identified uses Industrial use

Uses advised against Do not use for products which come into direct contact with the skin
Do not use for private purposes (household)

1.3 Details of the supplier of the safety data sheet

Verdesian Life Sciences, U.S., LLC.
1001 Winstead Drive, Suite 480
Cary, NC 27513
United States

Telephone: (800) 868-6446
Telefax: (919) 535-3652

1.4 Emergency telephone number

Poison center		
Country	Name	Telephone
United States	INFOTRAC (North America)	1-800-535-5053

As above or nearest toxicological information centre.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
A.2	skin corrosion/irritation	1	Skin Corr. 1C	H314
A.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
A.4R	respiratory sensitization	1	Resp. Sens. 1	H334
A.4S	skin sensitization	1	Skin Sens. 1	H317

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Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
A.6	carcinogenicity	1B	Carc. 1B	H350i
A.7	reproductive toxicity	1B	Repr. 1B	H360FD
A.9	specific target organ toxicity - repeated exposure	2	STOT RE 2	H373

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

Delayed or immediate effects can be expected after short or long-term exposure.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Signal word Danger

Pictograms

GHS05, GHS08



Hazard statements

- H314** Causes severe skin burns and eye damage.
- H317** May cause an allergic skin reaction.
- H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H350i** May cause cancer by inhalation.
- H360FD** May damage fertility. May damage the unborn child (if swallowed).
- H373** May cause damage to organs (brain) through prolonged or repeated exposure (if inhaled).

Precautionary statements

- P201** Obtain special instructions before use.
- P202** Do not handle until all safety precautions have been read and understood.
- P260** Do not breathe dust/fume/gas/mist/vapors/spray.
- P264** Wash thoroughly after handling.
- P272** Contaminated work clothing must not be allowed out of the workplace.
- P280** Wear protective gloves/protective clothing/eye protection/face protection.
- P285** In case of inadequate ventilation wear respiratory protection.
- P301+P330+P331** If swallowed: Rinse mouth. Do NOT induce vomiting.
- P302+P352** If on skin: Wash with plenty of water.
- P303+P361+P353** If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P304+P340** If inhaled: Remove person to fresh air and keep comfortable for breathing.

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Precautionary statements

P304+P341	If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	If exposed or concerned: Get medical advice/attention.
P310	Immediately call a poison center/doctor.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container to hazardous or special waste collection point.

Hazardous ingredients for labelling

maleic-itaconic copolymer ammonium salt
cobalt nitrate
boric acid
manganese sulfate

2.3 Other hazards

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of $\geq 0.1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances







Not relevant (mixture).

3.2 Mixtures

Description of the mixture

Hazardous ingredients					
Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
maleic-itaconic copolymer ammonium salt	CAS No 701908-99-8	10 - < 25	Skin Corr. 1C / H314 Eye Dam. 1 / H318		-
Zinc sulfate	CAS No 7733-02-0	5 - < 10	Acute Tox. 4 / H302 Eye Dam. 1 / H318		-
Manganese sulfate	CAS No 7785-87-7	5 - < 10	Eye Dam. 1 / H318 STOT RE 2 / H373	 	-
Iron(II) sulfate	CAS No 7720-78-7	3 - < 5	Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319		-

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Hazardous ingredients					
Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Boric acid	CAS No 10043-35-3	0.3 – < 1	Repr. 1B / H360FD		-
Salicylic acid	CAS No 69-72-7	0.3 – < 1	Acute Tox. 4 / H302 Eye Dam. 1 / H318 Repr. 2 / H361d CD / OSHA003	 	-
Cobalt dinitrate	CAS No 10141-05-6	0.1 – < 0.3	Acute Tox. 4 / H302 Eye Dam. 1 / H318 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Muta. 2 / H341 Carc. 1B / H350i Repr. 1B / H360F Ox. Sol. 2 / H272	  	-

For full text of H-phrases: see SECTION 16

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Self-protection of the first aider.

Take off immediately all contaminated clothing.

IF exposed or concerned: Get medical advice/attention.

Following inhalation

Provide fresh air.

Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

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

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

Call a physician immediately.

Following eye contact

Rinse immediately carefully and thoroughly with eye shower or water.

Remove contact lenses, if present and easy to do. Continue rinsing.

Get immediate medical advice/attention.

Following ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting.

Get immediate medical advice/attention.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

This information is not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

water spray, alcohol resistant foam, fire extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

Hazardous decomposition products: Section 10.

Hazardous combustion products

nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), metallic oxides containing heavy metals

5.3 Advice for firefighters

Keep containers cool with water spray.

In case of fire and/or explosion do not breathe fumes.

Coordinate 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

use suitable breathing apparatus, chemical protection suit

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 breathe dust/fume/gas/mist/vapors/spray.

Do not get in eyes, on skin, or on clothing.

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 vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

Retain contaminated washing water and dispose of it.

If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to clean up a spill

Collect spillage.

Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.).

Appropriate containment techniques

Use of adsorbent materials.

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

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid contact with skin and eyes.

Do not breathe vapor/spray.

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Keep away from sources of ignition - No smoking.

Specific notes/details

None.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Remove contaminated clothing and protective equipment before entering eating areas.

Do not breathe dust/fume/gas/mist/vapors/spray.

Do not get in eyes, on skin, or on clothing.

Avoid contact during pregnancy/while nursing.

Wash thoroughly after handling.

Preventive skin protection (barrier creams/ointments) is recommended.

7.2 Conditions for safe storage, including any incompatibilities

Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

frost

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

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

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

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

Keep cool.

Packaging compatibilities

Only packagings which are approved (e.g. acc. to DOT) may be used.

7.3 Specific end use(s)

Industrial use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

The following constituents are the only constituents of the product which have a PEL, a TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
US	Cobalt, inorganic compounds	-	TLV®	-	0.02	-	-	Co, i	ACGIH® 2023
US	Iron, soluble salts	-	REL	-	1 (10 h)	-	-	Fe	NIOSH REL
US	Iron salts, soluble	-	PEL (CA)	-	1	-	-	Fe	Cal/OSHA PEL
US	Iron salts, soluble	-	TLV®	-	1	-	-	Fe	ACGIH® 2023
US	Boric acid	10043-35-3	TLV®	-	2	-	6	I	ACGIH® 2023
US	Manganese, inorganic compounds	-	TLV®	-	0.1	-	-	I, Mn	ACGIH® 2023
US	Manganese, inorganic compounds	-	TLV®	-	0.02	-	-	R, Mn	ACGIH® 2023
US	Manganese compounds	-	PEL (CA)	-	0.2	-	-	Mn	Cal/OSHA PEL
US	Manganese compounds	-	REL	-	1 (10 h)	-	3	Mn	NIOSH REL
US	Manganese compounds	-	PEL	-	-	-	-	Mn	29 CFR 1910.1000

Notation

Co calculated as Co (cobalt)

dm as dusts and mists

Fe calculated as Fe (iron)

i inhalable fraction

Mn calculated as Mn (manganese)

r respirable fraction

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

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Biological limit values							
Country	Name of agent	Parameter	Notation	Identifier	Value	Material	Source
US	Cobalt, inorganic compounds, including cobalt oxides but not combined with tungsten carbide	Cobalt	-	BEI®	15 µg/l	Urine	ACGIH® 2023

8.2 Exposure controls

Avoid contact during pregnancy/while nursing.

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Body protection

Protective clothing against liquid chemicals.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

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

Liquid

Color

dark green

Odor

Characteristic

Odor threshold

Not determined

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Other safety parameters

pH (value) 2.5 – 3.5 (20 °C)

Melting point/freezing point Not determined

Boiling point or initial boiling point and boiling range Not determined

Flash point Not determined

Evaporation rate Not determined

Flammability (solid, gas) Not relevant
(fluid)

Explosive limits Not determined

Vapor pressure Not determined

Density Not determined

Relative density 1.36 at 20 °C (water = 1)

Relative vapour density this information is not available

Solubility(ies)

Water solubility Miscible in any proportion

Partition coefficient

n-octanol/water (log KOW) Not determined

Auto-ignition temperature Not determined

Decomposition temperature Not relevant

Viscosity

Kinematic viscosity Not determined

Dynamic viscosity Not determined

Explosive properties None

Oxidizing properties None

Information for relevant hazard classes according to GHS Hazard classes acc. to GHS (Physical hazards):
Not relevant

9.2 Other information There is no additional information

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

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

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

There is no additional information.

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.

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 acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species	Method
Zinc sulfate	7733-02-0	Oral	LD50	1,710 mg/kg	Rat	OECD Guideline 401
Zinc sulfate	7733-02-0	Dermal	LD50	>2,000 mg/kg	Rat	OECD Guideline 402
Manganese sulfate	7785-87-7	Oral	LD50	2,150 mg/kg	Rat	-
Manganese sulfate	7785-87-7	Inhalation: dust/mist	LC50	>4.45 mg/l/4h	Rat	-

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Name of substance	CAS No	Exposure route	Endpoint	Value	Species	Method
Iron(II) sulfate	7720-78-7	Dermal	LD0	>2,000 mg/kg	Rat	OECD Guideline 402
Boric acid	10043-35-3	Oral	LD50	3,450 mg/kg	Rat, male	-
Boric acid	10043-35-3	Oral	LD50	4,080 mg/kg	Rat, female	-
Boric acid	10043-35-3	Dermal	LD0	>2,000 mg/kg	Rabbit	FIFRA (40 CFR 163)
Salicylic acid	69-72-7	Oral	LD50	891 mg/kg	Rat, male	OECD Guideline 401
Salicylic acid	69-72-7	Dermal	LD0	>10,000 mg/kg	Rabbit	OECD Guideline 402
Cobalt dinitrate	10141-05-6	Oral	LD50	978 mg/kg	Rat	OECD Guideline 401

Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity

May cause cancer by inhalation.

IARC Monographs

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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National Toxicology Program (United States)

None of the ingredients are listed.

OSHA Carcinogens

None of the ingredients are listed.

Reproductive toxicity

May damage the unborn child (if swallowed).

May damage fertility (if swallowed).

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

May cause damage to organs (brain) through prolonged or repeated exposure (if inhaled).

Hazard category	Target organ	Exposure route
2	Brain	If inhaled

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

The mixture contains substance(s) with an endocrine disrupting potential.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Very toxic to aquatic organisms.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method
Zinc sulfate	7733-02-0	LC50	96 h	780 mg/l	Fathead minnow (Pimephales promelas)	-
Zinc sulfate	7733-02-0	LC50	48 h	280 µg/l	Daphnia magna	-
Zinc sulfate	7733-02-0	EC50	48 h	860 µg/l	Daphnia magna	-
Zinc sulfate	7733-02-0	ErC50	72 h	350 µg/l	Algae	OECD Guideline 201
Manganese sulfate	7785-87-7	ErC50	72 h	61 mg/l	Algae (Desmodesmus subspicatus)	OECD Guideline 201

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Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method
Salicylic acid	69-72-7	EC50	72 h	>100 mg/l	Algae (Scenedesmus subspicatus)	OECD Guideline 201
Salicylic acid	69-72-7	EC50	48 h	870 mg/l	Daphnia magna	OECD Guideline 202
Salicylic acid	69-72-7	LC50	96 h	1,370 mg/l	Fathead minnow (Pimephales promelas)	OECD Guideline 203

Aquatic toxicity (chronic)

Toxic to aquatic life with long lasting effects.

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method
Zinc sulfate	7733-02-0	NOEC	116 d	57 µg/l	Fish	OECD Guideline 210
Zinc sulfate	7733-02-0	NOEC	10 d	11.5 µg/l	Aquatic invertebrates	-
Zinc sulfate	7733-02-0	NOEC	72 h	24 µg/l	Algae (pseudokirchneriella subcapitata)	OECD Guideline 201
Manganese sulfate	7785-87-7	NOEC	20 d	20 µg/l	Aquatic invertebrates	-
Manganese sulfate	7785-87-7	NOEC	72 h	1 mg/l	Algae (Desmodesmus subspicatus)	OECD Guideline 201
Salicylic acid	69-72-7	NOEC	21 d	10 mg/l	Daphnia magna	OECD Guideline 202

12.2 Persistence and degradability

Biodegradation

No data available.

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time	Method
Salicylic acid	69-72-7	DOC removal	>90 %	4 d	EU method C.9

Phree Up

Persistence

No data available.

12.3 Bioaccumulative potential

Test data are not available for the complete mixture.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW
Zinc sulfate	7733-02-0	96.05	-
Boric acid	10043-35-3	-	-1.09 (pH value: 7.5, 22 °C)
Salicylic acid	69-72-7	-	2.25 (25 °C)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of $\geq 0.1\%$.

12.6 Other adverse effects

Data are not available.

Remarks

Keep away from drains, surface and ground water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

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SECTION 14: Transport information

14.1	UN number	
	DOT	UN1760
	IMDG-Code	UN1760
	ICAO-TI	UN1760
14.2	UN proper shipping name	
	DOT	Corrosive liquid, n.o.s.
	IMDG-Code	CORROSIVE LIQUID, N.O.S.
	ICAO-TI	Corrosive liquid, n.o.s.
	Technical name (hazardous ingredients)	maleic-itaconic copolymer ammonium salt
14.3	Transport hazard class(es)	8
	DOT	8
	IMDG-Code	8
	ICAO-TI	
14.4	Packing group	
	DOT	III
	IMDG-Code	III
	ICAO-TI	III
14.5	Environmental hazards	Hazardous to the aquatic environment
	Environmentally hazardous substance (aquatic environment)	zinc sulfat
14.6	Special precautions for user	-
14.7	Transport in bulk according to IMO instruments	-
14.8	<u>Information for each of the UN Model Regulations</u>	
	Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information	
	Particulars in the shipper's declaration	UN1760, Corrosive liquid, n.o.s., (maleic-itaconic copolymer ammonium salt), 8, III, environmentally hazardous

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Reportable quantity (RQ) 1000 lbs
(454 kg)
(zinc sulfate)

Danger label(s) 8, fish and tree



Environmental hazards Yes
(hazardous to the aquatic environment)

Special provisions (SP) IB3, T7, TP1, TP28

ERG No 154

International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant Yes
(hazardous to the aquatic environment)
(zinc sulphate)

Danger label(s) 8, fish and tree



Special provisions (SP) 223, 274

Excepted quantities (EQ) E1

Limited quantities (LQ) 5 L

EmS F-A, S-B

Stowage category A

International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Environmental hazards Yes
(hazardous to the aquatic environment)

Danger label(s) 8



Special provisions (SP) A3

Excepted quantities (EQ) E1

Limited quantities (LQ) 1 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) Not all ingredients are listed (ACTIVE)

Clean Air Act

None of the ingredients are listed

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

None of the ingredients are listed

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

None of the ingredients are listed

SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2023-09-12

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR 1910.1000	29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR U.S. Department of Transportation
ACGIH® 2023	From ACGIH®, 2023 TLVs® and BEIs® Book. Copyright 2023. Reprinted with permission. Information on the proper use of the TLVs® and BEIs®: http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/tlv-bei-position-statement
Acute Tox.	Acute toxicity
BCF	Bioconcentration factor
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CD	Combustible dust
DGR	Dangerous Goods Regulations (see IATA/DGR)
DOT	Department of Transportation (USA)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EmS	Emergency Schedule

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Abbr.	Descriptions of used abbreviations
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
ERG No	Emergency Response Guidebook - Number
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Mono-graphs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
Log KOW	n-Octanol/water
Muta.	Germ cell mutagenicity
NIOSH REL	National Institute for Occupational Safety and Health (NIOSH): Recommended Exposure Limits (RELs)
NOEC	No Observed Effect Concentration
OSHA	Occupational Safety and Health Administration (United States)
Ox. Sol.	Oxidizing solid
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
Ppm	Parts per million
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitization
RTECS	Registry of Toxic Effects of Chemical Substances (database of NIOSH with toxicological information)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin

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Abbr.	Descriptions of used abbreviations
Skin Sens.	Skin sensitization
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TLV®	Threshold Limit Values
TWA	Time-weighted average
VPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).

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 section 2 and 3)

Code	Text
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360F	May damage fertility (if swallowed).
H360FD	May damage fertility. May damage the unborn child (if swallowed).
H361d	Suspected of damaging the unborn child (if swallowed).
H373	May cause damage to organs (brain) through prolonged or repeated exposure (if inhaled).
OSHA003	May form combustible dust concentrations in air.

Responsible for the safety data sheet

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Disclaimer

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