

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Ultra-3 Dip Black Oxide

Revision date: 28.09.2023

Product code: DG-009

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

1.1. Product identifier

Ultra-3 Dip Black Oxide

UFI: KK20-C0GA-R00J-P2A1

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

Use of the substance/mixture

Creating a black layer on iron, steel and zinc (burnishing)

Uses advised against

Other uses than those specified in section 1.2 of this safety data sheet are not recommended.

1.3. Details of the supplier of the safety data sheet

Company name: Thomas Henning e.K.
 Street: Buschurweg 4
 Place: D-76870 Kandel
 Telephone: +49 7275 94 78 199
 E-mail: info@drgalva.com
 Internet: drgalva.net

1.4. Emergency telephone number:

Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Met. Corr. 1; H290
 Acute Tox. 4; H302
 Acute Tox. 4; H332
 Skin Corr. 1B; H314
 Eye Dam. 1; H318
 Skin Sens. 1; H317
 Aquatic Acute 1; H400
 Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

phosphoric acid
 Selenium dioxide
 copper sulphate pentahydrate
 nickel sulfate

Signal word: Danger

Pictograms:



Hazard statements

H290 May be corrosive to metals.
 H302+H332 Harmful if swallowed or if inhaled.

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H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P260	Do not breathe dust/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P501	Do not discard content with household waste and forward for disposal according to regional/national guidelines.

2.3. Other hazards

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7664-38-2	phosphoric acid			5 - < 10 %
	231-633-2	015-011-00-6	01-2119485924-24	
	Met. Corr. 1, Acute Tox. 4, Skin Corr. 1B; H290 H302 H314			
7446-08-4	Selenium dioxide			2.5 - < 5 %
	231-194-7	034-002-00-8	01-2120089867-33	
	Acute Tox. 2, Acute Tox. 3, Skin Corr. 1B, Eye Dam. 1, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H330 H301 H314 H318 H373 H400 H410			
7758-99-8	copper sulphate pentahydrate			2.5 - < 5 %
	231-847-6	029-023-00-4	01-2119520566-40	
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H302 H315 H318 H400 H410			
1314-13-2	zinc oxide			1 - < 2.5 %
	215-222-5	030-013-00-7	01-2119463881-32	
	Aquatic Acute 1, Aquatic Chronic 1; H400 H410			
7681-49-4	sodium fluoride			0.5 - < 1 %
	231-667-8	009-004-00-7	01-2119539420-47	
	Acute Tox. 3, Skin Irrit. 2, Eye Irrit. 2; H301 H315 H319 EUH032			
7786-81-4	nickel sulfate			< 0.1 %
	232-104-9	028-009-00-5	01-2119439361-44	
	Carc. 1A, Muta. 2, Repr. 1B, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1; H350i H341 H360D H332 H302 H315 H334 H317 H372 H400 H410			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
7664-38-2	231-633-2	phosphoric acid	5 - < 10 %
		oral: ATE = 500 mg/kg Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25	
7446-08-4	231-194-7	Selenium dioxide	2.5 - < 5 %
		inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); oral: ATE = 100 mg/kg	
7758-99-8	231-847-6	copper sulphate pentahydrate	2.5 - < 5 %
		oral: ATE 481 mg/kg Aquatic Acute 1; H400: M=10 Aquatic Chronic 1; H410: M=1	
1314-13-2	215-222-5	zinc oxide	1 - < 2.5 %
		oral: LD50 = > 5000 mg/kg	
7681-49-4	231-667-8	sodium fluoride	0.5 - < 1 %
		oral: LD50 = 52 mg/kg	
7786-81-4	232-104-9	nickel sulfate	< 0.1 %
		inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: ATE = 500 mg/kg Skin Irrit. 2; H315: >= 20 - 100 Skin Sens. 1; H317: >= 0,01 - 100 STOT RE 1; H372: >= 1 - 100 STOT RE 2; H373: >= 0,1 - < 1 Aquatic Acute 1; H400: M=1 Aquatic Chronic 1; H410: M=1	

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Further Information

The percentages of the ingredients not listed here are all below the level of consideration.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of troubles or persistent symptoms, consult an doctor/physician.

After inhalation

Provide fresh air. In case of respiratory tract irritation, consult a physician.

In case of irregular breathing or respiratory arrest, perform artificial respiration. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Call a doctor. Change contaminated clothing. Wash contaminated clothing before reuse.

After contact with eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

After ingestion

Rinse mouth, spit liquid again. Do NOT induce vomiting. Let water be drunken in little sips (dilution effect). Call a physician immediately. Aspiration hazard.

4.2. Most important symptoms and effects, both acute and delayed

irritation. burnes. gastro-intestinal ailment. Spasms. vomiting. Dyspnoea. Nausea. Stomach perforation.

Circulatory collapse. Pulmonary oedema

Allergic reactions

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂). Extinguishing powder. Fight larger fires with water spray jet or alcohol-resistant foam.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Upon exposure to fire, harmful gases may be emitted.

5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings. Wear a self-contained breathing apparatus and chemical protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Wear suitable protective clothing. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

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For containment

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Wear personal protection equipment. Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Personal precautions: refer to section 8 Persons with a history of skin sensitisation problems should not be employed in any process in which this product is used.

Provide adequate ventilation, especially in confined areas.

Do not empty into drains; dispose of this material and its container in a safe way.

Advice on general occupational hygiene

Avoid contact with skin, eyes and clothes. Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream. After work, wash hands and face. When using do not eat or drink.

Further information on handling

Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store only in original container. Keep container tightly closed in a cool, well-ventilated place.

Protect from heat/overheating.

Store separately from oxidizing agents.

Hints on joint storage

Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Creating a black layer on iron, steel and zinc (burnishing)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
-	Fluorides, inorganic	-	2.5		TWA (8 h)	
7664-38-2	Orthophosphoric acid	-	1		TWA (8 h)	
		-	2		STEL (15 min)	
1314-13-2	Zinc oxide, fume (Respirable Fraction)	-	2		TWA (8 h)	
		-	10		STEL (15 min)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
-	Inorganic fluorides (not uranium hexafluoride)	Fluoride	2 mg/L	Urine	Prior to shift

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DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
1314-13-2	zinc oxide		
Consumer DNEL, long-term	oral		0,83 mg/kg bw/day
Consumer DNEL, long-term	dermal		83,3 mg/kg bw/day
Worker DNEL, long-term	dermal		83,3 mg/kg bw/day
Consumer DNEL, long-term	inhalation		2,5 mg/m ³
Worker DNEL, long-term	inhalation		5 mg/m ³

PNEC values

CAS No	Substance	
Environmental compartment	Value	
1314-13-2	zinc oxide	
Freshwater	0,021 mg/l	
Marine water	0,006 mg/l	
Freshwater sediment	117,8 mg/kg	
Marine sediment	56,5 mg/kg	
Micro-organisms in sewage treatment plants (STP)	0,052 mg/l	
Soil	35,6 mg/kg	

Additional advice on limit values

According to the currently valid lists, there are not further binding work place safety values.

8.2. Exposure controls

Appropriate engineering controls

Do not breathe gas/fumes/vapour/spray. Provide protection equipment (eye wash bottles, etc.).

Individual protection measures, such as personal protective equipment

Eye/face protection

Tightly sealed safety glasses.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Suitable material:: NBR (Nitrile rubber).

Thickness of glove material: >0,35 mm

penetration time (maximum wearing period): >480 min.

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.

Skin protection

Protective clothing: Chemical resistant safety shoes

The design of personal protective equipment must be selected specifically for the job, depending on the concentration and quantity of hazardous substances. The chemical resistance of the protective agents should be clarified with their suppliers.

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Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Protective respiration apparatus not using surrounding air (breathing apparatus) (DIN EN 133).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	blue	
Odour:	characteristic	
Melting point/freezing point:		no data available
Boiling point or initial boiling point and boiling range:		100 °C
Flammability:		no data available
Lower explosion limits:		no data available
Upper explosion limits:		no data available
Flash point:		no data available
Auto-ignition temperature:		no data available
Decomposition temperature:		no data available
pH-Value (at 20 °C):		1,0
Viscosity / kinematic:		no data available
Water solubility:		no data available
Solubility in other solvents		no data available
Dissolution rate:		no data available
Partition coefficient n-octanol/water:		no data available
Dispersion stability:		no data available
Vapour pressure:		no data available
Vapour pressure:		no data available
Density:		1,0-1,1 g/cm ³
Relative density:		no data available
Bulk density:		no data available
Relative vapour density:		no data available
Particle characteristics:		no data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

not Explosive.

Self-ignition temperature

Solid:

no data available

Oxidizing properties

no data available

Other safety characteristics

Viscosity / dynamic:

no data available

Further Information

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Substances or mixtures corrosive to metals.

10.2. Chemical stability

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The product is stable under normal environmental conditions (room temperature).

10.3. Possibility of hazardous reactions

No dangerous reactivity under regular conditions.

10.4. Conditions to avoid

Protect against contaminations.

10.5. Incompatible materials

Oxidising substances
Base

10.6. Hazardous decomposition products

In case of fire hazardous decomposition products may be formed.
Carbon dioxide (CO₂). Carbon monoxide. Phosphorus oxides. Metal oxide smoke, toxic

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if swallowed.
Harmful if inhaled.

ATEmix calculated

ATE (oral) 1655 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) 14,25 mg/l; ATE (inhalation dust/mist) 1,425 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7664-38-2	phosphoric acid				
	oral	ATE 500 mg/kg			
7446-08-4	Selenium dioxide				
	oral	ATE 100 mg/kg			
	inhalation vapour	ATE 0,5 mg/l			
	inhalation dust/mist	ATE 0,05 mg/l			
7758-99-8	copper sulphate pentahydrate				
	oral	ATE 481 mg/kg			
1314-13-2	zinc oxide				
	oral	LD50 > 5000 mg/kg	Rat		
7681-49-4	sodium fluoride				
	oral	LD50 52 mg/kg	Rat	RTECS	
7786-81-4	nickel sulfate				
	oral	ATE 500 mg/kg			
	inhalation vapour	ATE 11 mg/l			
	inhalation dust/mist	ATE 1,5 mg/l			

Irritation and corrosivity

Causes severe skin burns and eye damage.
Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (nickel sulfate)

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Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

12.1. Toxicity

Very toxic to aquatic life.

Toxic to aquatic life with long lasting effects.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7664-38-2	phosphoric acid					
	Acute fish toxicity	LC50	138 mg/l	96 h	Gambusia affinis	
1314-13-2	zinc oxide					
	Acute fish toxicity	LC50	1,31 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	
	Acute algae toxicity	ErC50	0,21 mg/l	72 h	Pseudokirchneriella subcapitata	
	Acute crustacea toxicity	EC50	2,2 mg/l	48 h	Daphnia magna	
	Algae toxicity	NOEC	0,04 mg/l		Pseudokirchneriella subcapitata	
7681-49-4	sodium fluoride					
	Acute fish toxicity	LC50	925 mg/l	96 h	Gambusia affinis	
	Acute algae toxicity	ErC50	850 mg/l	72 h	Desmodesmus subspicatus	
	Acute crustacea toxicity	EC50	338 mg/l	48 h	Daphnia magna	IUCLID

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No data available.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Disposal according to official regulations.


Consult the local waste disposal expert about waste disposal. According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Contaminated packaging


Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (phosphoric acid, Selenium dioxide)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
	
Classification code:	C1
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (phosphoric acid, Selenium dioxide)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
	
Classification code:	C1
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3264
14.2. UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (phosphoric acid, selenium dioxide)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

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Special Provisions: 223 274
 Limited quantity: 5 L
 Excepted quantity: E1
 EmS: F-A, S-B
 Segregation group: 1 - acids

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 3264
14.2. UN proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (phosphoric acid, selenium dioxide)
14.3. Transport hazard class(es): 8
14.4. Packing group: III
 Hazard label: 8



Special Provisions: A3 A803
 Limited quantity Passenger: 1 L
 Passenger LQ: Y841
 Excepted quantity: E1
 IATA-packing instructions - Passenger: 852
 IATA-max. quantity - Passenger: 5 L
 IATA-packing instructions - Cargo: 856
 IATA-max. quantity - Cargo: 60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes



Danger releasing substance: Selenium dioxide, copper sulphate pentahydrate, zinc oxide

14.6. Special precautions for user

No special precautions known.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 27, Entry 75

Information according to Directive 2012/18/EU (SEVESO III): E1 Hazardous to the Aquatic Environment

Additional information

Regulation (EC) No. 1907/2006 (REACH)
 Regulation (EC) No. 648/2004 [Detergents regulation]: not applicable
 Regulation (EC) No. 1005/2009 on substances that lead to the depletion of the ozone layer: not applicable
 Regulation (EC) No 850/2004 on persistent organic pollutants: not applicable
 Regulation (EC) No 649/2012 of the European Parliament and of the Council concerning the export and import of dangerous chemicals: This mix contains no chemicals that are subject to the export notification procedures

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(annex 1).

This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: none

This mixture contains the following substances of very high concern (SVHC) which are subject to authorisation according to Annex XIV of REACH: none

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 3 - highly hazardous to water

Additional information

Observe in addition any national regulations!

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

phosphoric acid
Selenium dioxide
copper sulphate pentahydrate
zinc oxide
sodium fluoride
nickel sulfate

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,2,3,4,6,7,8,9,10,11,12,14,15,16.

Version 1,00 - 22.03.2021 - first creation

Version 1,01 - 09.02.2022 - General update

Version 1,02 - 29.08.2023 - Change and revision of the SDS because of new information / recipe

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Abbreviations and acronyms

Met. Corr: Substance or mixture corrosive to metals
 Acute Tox: Acute toxicity
 Skin Corr: Skin corrosion
 Skin Irrit: Skin irritation
 Eye Dam: Eye damage
 Eye Irrit: Eye irritation
 Resp. Sens: Respiratory sensitisation
 Skin Sens: Skin sensitisation
 Muta: Germ cell mutagenicity
 Carc: Carcinogenicity
 Repr: Reproductive toxicity
 STOT RE: Specific target organ toxicity - repeated exposure
 Aquatic Acute: Acute aquatic hazard
 Aquatic Chronic: Chronic aquatic hazard
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 BImSchV (Fed.Imm.Prot.Act): Directive on the Implementation of the Federal Immission Protection Act
 CAS: Chemical Abstracts Service
 DIN: Norm of the Deutsche Institut für Normung (German Institute for Standardization)
 EC: Effective Concentration
 EG: European Community (Europäische Gemeinschaft)
 EN: European Norm
 IATA: International Air Transport Association
 IBC Code: International Code for the Construction and Equipment of ships carrying Dangerous Chemicals in Bulk
 ICAO: International Civil Aviation Organization
 IMDG: International Maritime Code for Dangerous Goods
 ISO: Norm of the International Standards Organization
 CLP: Classification, Labeling, Packaging
 IUCLID: International Uniform Chemical Information Database
 LC: Lethal concentration
 LD: Lethal dose
 log Kow: Octanol/water partition coefficient
 MARPOL: Maritime Pollution Convention = Convention for the Prevention of Maritime Pollution from Ships
 OECD: Organisation for Economic Co-operation and Development
 PBT: Persistent, bio-cumulative, toxic
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail
 TRGS: Technische Regeln für Gefahrstoffe
 UN: United Nations
 VOC: Volatile Organic Compounds
 vPvB: very persistent and very bio-cumulative
 VwVwS: Administrative Regulation for Water Pollutants
 WGK: German Water Hazard Class
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 DNEL: Derived No Effect Level
 PNEC: Predicted No Effect Concentration
 TLV: Threshold Limiting Value
 STOT: Specific Target Organ Toxicity

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Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data
Acute Tox. 4; H302	Calculation method
Acute Tox. 4; H332	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Acute 1; H400	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H302+H332	Harmful if swallowed or if inhaled.
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.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH032	Contact with acids liberates very toxic gas.

Further Information

The information given in this safety data sheet is to describe the product's safety regulations. It is not for guaranteeing certain characteristics and is based on today's knowledge. The safety data sheet was generated upon information of pre-suppliers by:

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(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)