

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

1.1 Product identifier

Trade name	Ferrocid 4601
Article number	48236
Identifiers (European Union)	
Registration number (REACH)	not relevant (mixture)

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

Relevant identified uses	Biocide Industrial uses
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1.3 Details of the supplier of the safety data sheet

Kurita Europe GmbH
Theodor-Heuss-Anlage 2
DE-68165 Mannheim
Germany
Telephone: + 49 621 1218-3000
e-mail: KEG_PS@kurita-water.com
Website: www.kurita.eu

Distributor

Acqua Brevetti S.r.l.
Via Molveno, 8
35035 Mestrino (PD)
Italia
Tel: +39 049 897 4006
Fax: +39 049 897 8649
e-mail: info@acquabrevetti.it

1.4 Emergency telephone number

Emergency CONTACT (24-Hour-Number):
Europe: GBK GmbH +49 (0)6132-84463
International: GBK/Infotrac ID 108808: (001) 352 323 3500
Assistance in mother tongue.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.16	substance or mixture corrosive to metals	1	Met. Corr. 1	H290
3.2	skin corrosion/irritation	1A	Skin Corr. 1A	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.7	reproductive toxicity	2	Repr. 2	H361
4.1A	hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400
4.1C	hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

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. Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

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

Signal word danger

Pictograms

GHS05, GHS08,
GHS09



Hazard statements

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H361	Suspected of damaging fertility or the unborn child.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe mist/vapours/spray.
P273	Avoid release to the environment.
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].
P304+P340	IF INHALED: 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.
P310	Immediately call a POISON CENTER/doctor.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental hazard information

EUH031 Contact with acids liberates toxic gas.

Hazardous ingredients for labelling

Sodium hypobromite, sodium hydroxide, sodium bromide

2.3 Other hazards

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at 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

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
Sodium hypobromite	CAS No 13824-96-9 EC No 237-520-4	15 – < 20	Skin Corr. 1B / H314 Eye Dam. 1 / H318 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	
sodium bromide	CAS No 7647-15-6 EC No 231-599-9 REACH Reg. No 01-2119490106-41- xxxx	5 – < 10	Repr. 2 / H361 STOT SE 3 / H336 STOT RE 2 / H373	
sodium hydroxide	CAS No 1310-73-2 EC No 215-185-5 Index No 011-002-00-6 REACH Reg. No 01-2119457892-27- xxxx	5 – < 10	Met. Corr. 1 / H290 Skin Corr. 1A / H314 Eye Dam. 1 / H318	

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
sodium hydroxide	Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Dam. 1; H318: C ≥ 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 %	-	-	

Remarks

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Take off contaminated clothing. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Ingestion causes pain, burns, abdominal pain, possible general impact (shock).

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote is known. Treatment of the symptoms.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate firefighting measures to the fire surroundings, Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

Hazardous combustion products

Hydrogen bromide (HBr), Bromine

5.3 Advice for firefighters

Non-combustible. 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

Chemical protection suit, Use suitable breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/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 contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder, material for neutralising like diluted acetic acid

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

Recommendations

Measures to prevent fire as well as aerosol and dust generation

Never add water to this product. Keep container tightly closed. Conditions to avoid: Generation/formation of mist.

Keep away from

Acids, Organic materials, Reducing agents, Iron

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

Corrosive conditions

Store in corrosive resistant container with a resistant inner liner.

Control of effects

Protect against external exposure, such as

High temperatures, Frost, Direct light irradiation

Specific designs for storage rooms or vessels

Storage temperature

Recommended storage temperature: 5 - <30 °C

Packaging compatibilities

Keep only in original container. Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

Biocide. Industrial uses.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

this information is not available

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Relevant DNELs of components						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
sodium bromide	7647-15-6	DNEL	95 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
sodium bromide	7647-15-6	DNEL	4.93 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
sodium bromide	7647-15-6	DNEL	70 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
sodium hydroxide	1310-73-2	DNEL	1 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects

Relevant PNECs of components					
Name of substance	CAS No	End-point	Threshold level	Environmental compartment	Source
sodium bromide	7647-15-6	PNEC	56 µg/l	freshwater	ECHA
sodium bromide	7647-15-6	PNEC	5.6 µg/l	marine water	ECHA
sodium bromide	7647-15-6	PNEC	100 mg/l	sewage treatment plant (STP)	ECHA
sodium bromide	7647-15-6	PNEC	10 mg/kg	soil	ECHA

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin 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. In case of spray contact at least protection index 2 recommended, according to more than 30 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.4 mm

In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.7 mm.

Type of material

PVC: polyvinyl chloride, PE: polyethylene, CR: chloroprene (chlorobutadiene) rubber, NBR: acrylonitrile-butadiene rubber, IIR: isobutene-isoprene (butyl) rubber, FKM: fluoro-elastomer

Breakthrough times of the glove material

Breakthrough times and swelling properties of the material must be taken into consideration

Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Body protection

Chemical resistant protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Type: ABEK (combined filters against gases and vapours, colour code: Brown/Grey/Yellow/Green).

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

Physical state	liquid
Colour	yellow - orange
Odour	characteristic
Melting point/freezing point	-5 °C
Boiling point or initial boiling point and boiling range	ca. 100 °C (The product decomposes.)
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	no data available
pH (value)	12.2 – 14 (in aqueous solution: 1 % (W/W)) (base)
Kinematic viscosity	not determined

Solubility(ies)

Water solubility	miscible in any proportion
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Partition coefficient

Partition coefficient n-octanol/water (log value)	<3
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Vapour pressure	not determined
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Density and/or relative density

Density	1.4 – 1.46 g/cm ³ at 20 °C
Relative vapour density	information on this property is not available

Particle characteristics	not relevant (liquid)
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9.2 Other information

Information with regard to physical hazard classes

Flammable liquids

Sustained combustibility	NO (no sustained combustion was observed)
Corrosive to metals	category 1: corrosive to metals

Other safety characteristics

Miscibility	Completely miscible with water.
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SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

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

Contact with acids liberates toxic gas. Highly exothermic reaction with: Hypochlorites.

10.4 Conditions to avoid

Heat. Frost.

10.5 Incompatible materials

Iron, Hypochlorites, Organic materials, Reducing agents, Acids

Release of flammable materials with:

Light metals (due to the release of hydrogen in an acid/alkaline medium)

Release of toxic materials with:

Acids

10.6 Hazardous decomposition products

Hydrogen bromide (HBr). Bromine. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

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

Acute toxicity

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

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Test data are not available for the complete mixture.

Germ cell mutagenicity

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

Carcinogenicity

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

Reproductive toxicity

Based on available data, the classification criteria are not met. Suspected of damaging the unborn child. Suspected of damaging fertility. This product contains sodium bromide, which is self-classified as a Category 2 reproductive toxin. However, long-term exposure is unlikely due to the highly corrosive nature of the product. Thus, sodium bromide is not bioavailable.

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)			
<i>Endpoint</i>	<i>Value</i>	<i>Species</i>	<i>Exposure time</i>
EC50	0.58 mg/l	Raphidocelis subcapitata	72 h
EC50	2.1 mg/l	daphnia magna	48 h
LC50	3.6 mg/l	rainbow trout	96 h

Aquatic toxicity (acute) of components						
<i>Name of substance</i>	<i>CAS No</i>	<i>Endpoint</i>	<i>Value</i>	<i>Species</i>	<i>Source</i>	<i>Exposure time</i>
sodium bromide	7647-15-6	LC50	>440 mg/l	fish	ECHA	96 h
sodium bromide	7647-15-6	EC50	$\geq 1,000$ mg/l	aquatic invertebrates	ECHA	48 h
sodium bromide	7647-15-6	ErC50	>440 mg/l	algae	ECHA	72 h

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Aquatic toxicity (chronic) of components of the mixture						
Name of substance	CAS No	Endpoint	Value	Species	Source	Exposure time
sodium bromide	7647-15-6	EC50	20.8 mg/l	aquatic invertebrates	ECHA	21 d
sodium bromide	7647-15-6	NOEC	10 mg/l	fish	ECHA	124 d
sodium bromide	7647-15-6	LOEC	100 mg/l	fish	ECHA	124 d
sodium bromide	7647-15-6	growth (EbCx) 10%	43 mg/l	aquatic invertebrates	ECHA	16 d

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.

n-octanol/water (log KOW)	<3
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Bioaccumulative potential of components of the mixture				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
sodium bromide	7647-15-6	0.23		

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. 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. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN 3266
IMDG-Code	UN 3266
ICAO-TI	UN 3266

14.2 UN proper shipping name

ADR/RID/ADN	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
IMDG-Code	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
ICAO-TI	Corrosive liquid, basic, inorganic, n.o.s.
Technical name (hazardous ingredients)	Sodium hypobromite, sodium hydroxide

14.3 Transport hazard class(es)

ADR/RID/ADN	8
IMDG-Code	8
ICAO-TI	8

14.4 Packing group

ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

	hazardous to the aquatic environment
Environmentally hazardous substance (aquatic environment)	Sodium hypobromite

14.6 Special precautions for user

There is no additional information.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

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

Classification code	C5
Danger label(s)	8, fish and tree



Environmental hazards	yes (hazardous to the aquatic environment)
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E

Hazard identification No 80

International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant YES (hazardous to the aquatic environment) (Sodium hypobromite)

Danger label(s) 8, fish and tree



Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

EmS F-A, S-B

Stowage category B

Segregation group 18 - Alkalis

Segregation codes SG35

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

Environmental hazards YES (hazardous to the aquatic environment)

Danger label(s) 8



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	CAS No	No
Ferrocid 4601	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
sodium hydroxide	substances in tattoo inks and permanent make-up		75
sodium bromide	substances in tattoo inks and permanent make-up		75

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

none of the ingredients are listed

Seveso Directive

2012/18/EU (Seveso III)				
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
E1	environmental hazards (hazardous to the aquatic en-	100	200	56)

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2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	Environment, cat. 1)		

Notation

56) hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

List of pollutants (WFD)			
Name of substance	CAS No	Listed in	Remarks
Ferrocid 4601		a)	
sodium hydroxide		a)	
Sodium hypobromite		a)	
sodium bromide		a)	
sodium bromide		a)	

Legend

a) Indicative list of the main pollutants

Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors, amending Regulation (EC) No 1907/2006 and repealing Regulation (EU) No 98/2013

none of the ingredients are listed

Regulation on drug precursors

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

Regulation 528/2012/EU concerning the making available on the market and use of biocidal products

Use biocides safely. Always read the label and product information before use.

Restrictions of occupation

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

15.2 Chemical safety assessment

Chemical Safety Assessment: No

SECTION 16: Other information

Indication of changes (revised safety data sheet)

<i>Section</i>	<i>Former entry (text/value)</i>	<i>Actual entry (text/value)</i>
2.1		Classification according to Regulation (EC) No 1272/2008 (CLP): change in the listing (table)
2.2		Pictograms: change in the listing (table)
2.2		Hazard statements: change in the listing (table)
2.2	Hazardous ingredients for labelling: Sodium hypobromite, sodium hydroxide	Hazardous ingredients for labelling: Sodium hypobromite, sodium hydroxide, sodium bromide
3.2		Description of the mixture: change in the listing (table)
4.1	Following skin contact: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor.	Following skin contact: Take off contaminated clothing. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor.
8.1		Relevant DNELs of components: change in the listing (table)
8.1		Relevant PNECs of components: change in the listing (table)
11.1	Reproductive toxicity: Based on available data, the classification criteria are not met. This product contains sodium bromide, which is self-classified as a Category 2 reproductive toxin. However, long-term exposure is unlikely due to the highly corrosive nature of the product. Thus, sodium bromide is not bioavailable.	Reproductive toxicity: Based on available data, the classification criteria are not met. Suspected of damaging the unborn child. Suspected of damaging fertility. This product contains sodium bromide, which is self-classified as a Category 2 reproductive toxin. However, long-term exposure is unlikely due to the highly corrosive nature of the product. Thus, sodium bromide is not bioavailable.
12.1	Toxicity: Very toxic to aquatic life.	Toxicity: Very toxic to aquatic life with long lasting effects.
12.1		Aquatic toxicity (acute) of components: change in the listing (table)
12.1		Aquatic toxicity (chronic) of components of the mixture: change in the listing (table)
12.3		n-octanol/water (log KOW): <3
12.3		Bioaccumulative potential of components of the mixture: change in the listing (table)
15.1		Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)
15.1		List of pollutants (WFD): change in the listing (table)
15.1	Restrictions of occupation: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).	Restrictions of occupation: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under

Section	Former entry (text/value)	Actual entry (text/value)
		the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
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 relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
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
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)
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
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
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
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

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<i>Abbr.</i>	<i>Descriptions of used abbreviations</i>
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
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LOEC	Lowest Observed Effect Concentration
log KOW	n-Octanol/water
Met. Corr.	Substance or mixture corrosive to metals
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
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 RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure
SVHC	Substance of Very High Concern
vPvB	Very Persistent and very Bioaccumulative

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 2020/878/EU. ECHA: European Chemicals Agency, <http://echa.europa.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: The classification is based on tested mixture.

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)

<i>Code</i>	<i>Text</i>
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

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<i>Code</i>	<i>Text</i>
H410	Very toxic to aquatic life with long lasting effects.

Disclaimer

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