

Nature2 Spa Sanitizer

Safety Data Sheet

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Revision Date: 19/04/2018

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Version: 2.2

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

1.1. Product identifier

Product Form : Mixture
Product Name : Nature² Spa Sanitizer
Synonyms : Nature² Spa Sanitizer™; ProcClear™; Sparkle Clear™; Fresh Water AG+™, ThermoClear™; SunPurity™, Vision™, Artesian Mineral Spa Sanitizer™, Monarch™

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Spa water sanitization and disinfection

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Company

Zodiac Pool Care Europe
BP 90023 - 49 180 Saint-Barthélemy
d'Anjou cedex – France

1.4. Emergency telephone number

Emergency contact : NCEC (National Chemical Emergency Center) +44 (0) 1235 753654 - ncec@ricardo-aea.com

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Aquatic Acute 1 H400

Aquatic Chronic 1 H410

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS09

Signal word (CLP) : Warning

Hazard statements (CLP) : H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) : P273 - Avoid release to the environment.

P391 - Collect spillage.

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other hazards

Other hazards not contributing to the classification : If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Zinc	(CAS No) 7440-66-6 (EC no) 231-175-3 (EC index no) 030-001-01-9	50 - 70	Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aluminum oxide (Al ₂ O ₃)	(CAS No) 1344-28-1 (EC no) 215-691-6	20 - 40	Not classified
Silver	(CAS No) 7440-22-4 (EC no) 231-131-3	0,92	Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=10)

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.
- First-aid measures after skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.
- First-aid measures after eye contact : Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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

- Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.
- Symptoms/injuries after inhalation : May cause respiratory irritation.
- Symptoms/injuries after skin contact : Prolonged exposure may cause skin irritation.
- Symptoms/injuries after eye contact : May cause slight irritation to eyes.
- Symptoms/injuries after ingestion : Ingestion may cause adverse effects.
- Chronic symptoms : None expected under normal conditions of use.

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

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not considered flammable but may burn at high temperatures.
- Explosion hazard : Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.
- Reactivity : Hazardous reactions will not occur under normal conditions.

5.3. Advice for firefighters

- Precautionary measures fire : Exercise caution when fighting any chemical fire.
- Firefighting instructions : Use water spray or fog for cooling exposed containers.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses. Risk of dust explosion.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid prolonged contact with eyes, skin and clothing. Avoid breathing dust. Avoid generating dust.

6.1.1. For non-emergency personnel

- Protective equipment : Use appropriate personal protective equipment (PPE).
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.

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Emergency procedures : Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

For containment : Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Avoid generation of dust during clean-up of spills.

Methods for cleaning up : Clean up spills immediately and dispose of waste safely. Spills should be contained with mechanical barriers. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : When processed, the product dust is combustible. Use care during processing to minimize generation of dust.

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing dust. Avoid creating or spreading dust. Keep away from heat, sparks, open flames, hot surfaces. – No smoking.

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Avoid creating or spreading dust.

Storage conditions : Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible products : Strong acids, strong bases, strong oxidisers.

7.3. Specific end use(s)

Spa water sanitization and disinfection.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Aluminum oxide (Al ₂ O ₃) (1344-28-1)		
Austria	MAK (mg/m ³)	5 mg/m ³ (respirable fraction, smoke)
Austria	MAK Short time value (mg/m ³)	10 mg/m ³ (respirable fraction, smoke)
Belgium	Limit value (mg/m ³)	1 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
France	VME (mg/m ³)	10 mg/m ³
Greece	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
Latvia	OEL TWA (mg/m ³)	6 mg/m ³ (disintegration aerosol)
Spain	VLA-ED (mg/m ³)	10 mg/m ³
Switzerland	VLE (mg/m ³)	24 mg/m ³ (respirable dust, smoke)
Switzerland	VME (mg/m ³)	3 mg/m ³ (respirable dust, smoke)
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ inhalable dust 4 mg/m ³ respirable dust
Denmark	Grænseværdie (langvarig) (mg/m ³)	5 mg/m ³ (total) 2 mg/m ³ (respirable)
Estonia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
Hungary	AK-érték	6 mg/m ³ (respirable dust)

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Aluminum oxide (Al₂O₃) (1344-28-1)		
Lithuania	IPRV (mg/m ³)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction)
Norway	Grønseverdier (AN) (mg/m ³)	10 mg/m ³ (equal to the standard for nuisance dust)
Norway	Grønseverdier (Korttidsverdi) (mg/m ³)	15 mg/m ³ (equal to the standard for nuisance dust, value calculated)
Poland	NDS (mg/m ³)	2,5 mg/m ³ (inhalable fraction) 1,2 mg/m ³ (respirable fraction)
Romania	OEL TWA (mg/m ³)	2 mg/m ³ (regulated under Aluminium oxide-aerosol) 3 mg/m ³ (dust) 1 mg/m ³ (fume)
Romania	OEL STEL (mg/m ³)	5 mg/m ³ (regulated under Aluminium oxide-aerosols) 10 mg/m ³ (dust) 3 mg/m ³ (fume)
Slovakia	NPHV (priemerná) (mg/m ³)	1,5 mg/m ³ (fume) 1,5 mg/m ³ 0,1 mg/m ³ (regulated under .gamma.-Aluminum oxide-respirable fraction)
Sweden	nivågränsvärde (NVG) (mg/m ³)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable dust)
Portugal	OEL TWA (mg/m ³)	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen
Silver (7440-22-4)		
EU	IOELV TWA (mg/m ³)	0,1 mg/m ³
Austria	MAK (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
Austria	OEL - Ceilings (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	0,1 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	0,1 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,1 mg/m ³
Cyprus	OEL TWA (mg/m ³)	0,1 mg/m ³
France	VME (mg/m ³)	0,1 mg/m ³ (indicative limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
Greece	OEL TWA (mg/m ³)	0,1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0,1 mg/m ³ (dust and fume)
Italy	OEL TWA (mg/m ³)	0,1 mg/m ³
Latvia	OEL TWA (mg/m ³)	0,1 mg/m ³
Spain	VLA-ED (mg/m ³)	0,1 mg/m ³ (indicative limit value)
Switzerland	VLE (mg/m ³)	0,8 mg/m ³ (inhalable dust)
Switzerland	VME (mg/m ³)	0,1 mg/m ³ (inhalable dust)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,1 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	0,1 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	0,3 mg/m ³ (calculated)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	0,1 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	0,01 mg/m ³ (dust and powder)

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Silver (7440-22-4)		
Estonia	OEL TWA (mg/m ³)	0,1 mg/m ³
Finland	HTP-arvo (8h) (mg/m ³)	0,1 mg/m ³
Hungary	AK-érték	0,1 mg/m ³
Hungary	CK-érték	0,4 mg/m ³ (Substances with European indicative limits (96/94/EC, 2000/39/EC, 2006/15/EC, 2009/161/EU), which currently has no peak limit concentration. In these cases, Annex 3.1. should be used exercised)
Ireland	OEL (8 hours ref) (mg/m ³)	0,1 mg/m ³ (metallic)
Ireland	OEL (15 min ref) (mg/m ³)	0,3 mg/m ³ (calculated)
Lithuania	IPRV (mg/m ³)	0,1 mg/m ³
Malta	OEL TWA (mg/m ³)	0,1 mg/m ³ (metallic)
Norway	Greenseverdier (AN) (mg/m ³)	0,1 mg/m ³ (metal dust and fume)
Norway	Greenseverdier (Korttidsverdi) (mg/m ³)	0,3 mg/m ³ (value calculated-metal dust and fume)
Poland	NDS (mg/m ³)	0,05 mg/m ³ (inhalable fraction)
Romania	OEL TWA (mg/m ³)	0,1 mg/m ³
Slovakia	NPHV (priemerná) (mg/m ³)	0,1 mg/m ³
Slovenia	OEL TWA (mg/m ³)	0,01 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,1 mg/m ³ (total dust)
Portugal	OEL TWA (mg/m ³)	0,01 mg/m ³ (indicative limit value)

8.2. Exposure controls

Appropriate engineering controls

: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal protective equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for protective clothing

: Chemically resistant materials and fabrics.

Hand protection

: Wear chemically resistant protective gloves, such as disposable nitrile gloves with breakthrough time > 120 minutes for incidental contact. (EN 374).

Eye protection

: Chemical goggles or safety glasses (EN 166).

Skin and body protection

: Chemically resistant materials and fabrics (EN 374).

Respiratory protection

: Use EN149 disposable FFP2 dust mask or EN405 reusable half mask with EN143 P2 particulate filter.

Environmental exposure controls

: Do not allow the product to be released into the environment.

Other information

: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

	Silver (7440-22-4)	Zinc (7440-66-6)
Physical state (product)	Solid	
Colour (product)	Grey to Light Grey Powder	
Odour (product)	Odourless	
Odour threshold (product)	No data available	
pH	No data available	No data available
Evaporation rate	No data available	No data available
Melting point/ Freezing point	961,33 °C (literature)	409 to 413 °C at 1 atm
Boiling point	2187 °C at 1013.25 hPa (literature)	Not applicable; melting point of substance > 300 °C

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Flash point	Not applicable	Not applicable
Auto-ignition temperature	No data available	None of 8 zinc dust grades showed an increase in temperature over and above the storage temperature [UN recommendations on the transport of dangerous goods, Nr 4, section 14.4.2.2.4]
Decomposition temperature	No data available	50 °C (122 °F) start of oxidation in air at 1 atm
Flammability (solid, gas)	Non-flammable	Non-flammable
Vapour pressure	0,13 µbar at 840 °C	Not applicable
Relative vapour density at 20 °C	No data available	No data available
Relative density	10,5 at 20 °C	No data available
Density	No data available	6,9 g/cm ³
Solubility	Water: < 0.1 mg/L	Water: 0.1 mg/L at 20 °C and pH 6.93 to 8.57
Partition coefficient: n-octanol/water	Not applicable	Not applicable
Viscosity	Not applicable	Not applicable
Explosive properties (product)	Dust generated from processing may present a dust explosion hazard.	
Oxidising properties (product)	No data available	
Explosive limits (product)	No data available	

9.2. Other information

VOC content : Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials. Dust accumulation (to minimize explosion hazard).

10.5. Incompatible materials

Strong acids, strong bases, strong oxidisers.

10.6. Hazardous decomposition products

Oxides of silver. Oxides of zinc. Oxides of aluminum.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Aluminum oxide (Al₂O₃) (1344-28-1)

LD50 oral rat > 15900 mg/kg

LC50 inhalation rat (mg/l) > 2,3 mg/l/4h

Silver (7440-22-4)

LD50 oral rat > 2000 mg/kg (female Sprague-Dawley rat [OECD 423])

LD50 dermal rat > 2000 mg/kg (male/female Sprague-Dawley rat [OECD 402])

LC50 inhalation rat (mg/l) > 5,16 mg/l/4h (male/female Crj:CD(SD) rat [OECD 436])

Zinc (7440-66-6)

LD50 oral rat > 2000 mg/kg (male/female Wistar rat [OECD 401])

LC50 inhalation rat (mg/l) > 5,41 mg/m³ (male/female Wistar rat [OECD 403])

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Skin corrosion/irritation	: Not classified Silver: Not irritating to skin of male/female New Zealand White rabbit under semi-occlusive conditions [OECD 404] Zinc: Not irritating when 500 mg ZnO applied to ears of New Zealand White rabbit under occlusive conditions for 7 days [OECD 404]
Serious eye damage/irritation	: Not classified Silver: Not irritating to eye of New Zealand White rabbit [OECD 405] Zinc: Not irritating/corrosive to eye of New Zealand White rabbit [OECD 405 and EU Method B.5]
Respiratory or skin sensitisation	: Not classified Silver: Not sensitising to male/female Hartley guinea pig [EPA OPPTS 870.2600; Buehler test] Zinc: Not sensitising to female Dunkin-Hartley guinea pig [OECD 406 and EU Method B.6; guinea pig maximisation test]
Germ cell mutagenicity	: Not classified Silver: (<i>in vitro</i>) Negative with and without metabolic activation up to the limit of cytotoxicity [OECD 487; chromosome aberration test using human lymphocytes]. Positive without metabolic activation after 3 hour exposure to silver (I) sulphate but negative with metabolic activation [OECD 476; mammalian cell gene mutation test]. (<i>in vivo</i>) Negative in male/female Sprague-Dawley rat [OECD 474; Mammalian erythrocyte micronucleus test] Zinc: (<i>in vitro</i>) Non-mutagenic in bacterial reverse mutation assay [EU Method B.13/14]. (<i>in vivo</i>) Non-mutagenic in micronucleus test on mouse bone marrow [literature data; no guideline followed]
Carcinogenicity	: Not classified Silver: 8 of 26 animals that survived longer than 14 months developed malignant tumours; in six the tumour arose at the site of subcutaneous injection [literature data considered by lead registrant to be outdated in comparison to modern test methods/guidelines and not relevant for assessment under REACH] Zinc: Non-carcinogenic in Chester Beatty mice following 12-month investigation involving administration of zinc sulphate via drinking water [literature data; no guideline followed]
Reproductive toxicity	: Not classified Silver: NOAEL for reproductive toxicity (F1 generation) \geq 250 mg/kg bw/day in male/female Sprague-Dawley rat [OECD 422]. NOAEL for developmental toxicity > 100 mg/kg/day silver acetate based on maternal dose with no foetal effects observed [OECD 414] Zinc: NOAEL for reproductive toxicity (F1 generation) = 7.2 mg/kg bw/day in male/female Sprague-Dawley rat [OECD 416]. NOAEL for developmental toxicity based on teratogenicity = 35.2 mg/kg bw Zn ²⁺ anhydrate (hamster), 12 mg/kg bw Zn ²⁺ anhydrate (mice), 24 mg/kg bw Zn ²⁺ anhydrate (rabbit), 17 mg/kg bw Zn ²⁺ anhydrate (rat) [literature data; no guideline followed]
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified

Silver (7440-22-4)	
NOAEL (oral, rat, 90 days)	30 mg/kg bodyweight/day [OECD 408]
NOAEL (inhalation, rat, dust/mist/fume, 90 days)	133 $\mu\text{g}/\text{m}^3$ [OECD 413]
Zinc (7440-66-6)	
NOAEL (oral, rat, 90 days)	31,52 mg/kg bodyweight/day (zinc monoglycerolate [OECD 408])
NOAEL (inhalation, rat, dust/mist/fume, 90 days)	2,7 mg/m^3 (Species: male Hartley guinea pig - No guideline)

Aspiration hazard : Not classified (Not applicable; substance is an inorganic solid)

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Symptoms/Injuries After Inhalation	: May cause respiratory irritation.
Symptoms/Injuries After Skin Contact	: Prolonged exposure may cause skin irritation.
Symptoms/Injuries After Eye Contact	: May cause slight irritation to eyes.
Symptoms/Injuries After Ingestion	: Ingestion may cause adverse effects.
Chronic Symptoms	: None expected under normal conditions of use.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Aluminum oxide (Al₂O₃) (1344-28-1)

LC50 fish 1	> 100 mg/l
EC50 Daphnia 1	> 100 mg/l
ErC50 (algae)	> 100 mg/l
NOEC (acute)	> 50 mg/l

Silver (7440-22-4)

LC50 fish 1	1,2 µg/l (Exposure time: 96 h - Species: Pimephales promelas [Semi-static])
EC50 Daphnia 1	0,22 µg/l (Exposure time: 48 h - Species: Daphnia magna [Semi-static])
NOEC chronic fish	390 ng/l (Exposure time: 28d - Species: Pimephales promelas)
NOEC chronic crustacea	320 ng/l (Exposure time: 21d - Species: Daphnia magna)
NOEC chronic algae	160 ng/l (Exposure time: 15d - Species: Nostoc muscorum [Static])

Zinc (7440-66-6)

LC50 fish 1	439 µg/l (Exposure time: 96 h - Species: Cottus bairdii)
EC50 Daphnia 1	413 µg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia [Static; pH 6.5])
NOEC chronic fish	0,172 mg/l (Exposure time: 30 d - Species: Cottus bairdii)
NOEC chronic crustacea	0,031 ml/l (Exposure: 50 d - Species: Daphnia magna)
NOEC chronic algae	0,05 mg/l (Exposure: 3 d - Species: Pseudokirchneriella subcapitata [OECD 201])

12.2. Persistence and degradability

Silver (7440-22-4)

Persistence and degradability : Not applicable; the substance is inorganic.

Zinc (7440-66-6)

Persistence and degradability : Not applicable; the substance is inorganic.

12.3. Bioaccumulative potential

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Bioaccumulative potential : Not established.

Silver (7440-22-4)

BCF fish 1	70 dimensionless (Exposure time: 30d - Species: Cyprinus carpio) [literature data; no no guideline followed]
Log Kow	Not applicable; the substance is inorganic

Zinc (7440-66-6)

BCF fish 1	Results for 7 to 21 day exposure of Capoeta fusca under static freshwater conditions demonstrate active regulation of zinc by the organism. Bioconcentration is therefore not a relevant parameter for the essential element zinc [literature data; no guideline followed]
Log Kow	Not applicable; the substance is inorganic

12.4. Mobility in soil

Silver (7440-22-4)

Surface tension	No data; test does not need to be conducted because water solubility < 1 mg/L
Log Koc	Measured Kd values of approximately 500 soils collected from across Europe ranged from 159 to > 4700 L/Kg, with a median value of 4023 L/kg [unnamed study report; no guideline followed]

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Zinc (7440-66-6)	
Surface tension	No data; test does not need to be conducted because water solubility < 1 mg/L

12.5. Results of PBT and vPvB assessment

Silver (7440-22-4)	
Results of PBT assessment	Not applicable; substance is inorganic

Zinc (7440-66-6)	
Results of PBT assessment	Not applicable; substance is inorganic

12.6. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods



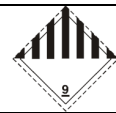


Waste disposal recommendations : Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional information : Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - waste materials : Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: Transport information

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued. Note: This product is classified as a Marine Pollutant (Environmentally Hazardous Substance) in accordance with the IMDG Code and the UN Model Regulations. However, it is packaged in either single packages or inner packagings in combination packages containing net quantities of less than 5 kg/5 L. In accordance with IMDG Code 2.10.2.7; ICAO Special Instruction A197, 49CFR 171.4(c)(2)), and ADR Special Provision 375 this product is shipped as unregulated. In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3077	3077	3077	3077	3077
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains silver and zinc)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains silver and zinc)	Environmentally hazardous substance, solid, n.o.s. (contains silver and zinc)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains silver and zinc)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains silver and zinc)
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes

14.6. Special precautions for user

No additional information available

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

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According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Aluminum oxide (Al₂O₃) (1344-28-1)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Silver (7440-22-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Zinc (7440-66-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

VOC content : Not applicable

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Date of Preparation or Latest Revision : 27/09/2017

Data sources : Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

Other information : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Full text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Indication of Changes

Section	Change	Date Changed	Version
14	Language modified	27/09/2017	2.1

Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR – European Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE - Acute Toxicity Estimate
BCF - Bioconcentration Factor
BEI - Biological Exposure Indices (BEI)
BOD – Biochemical Oxygen Demand
CAS No. - Chemical Abstracts Service Number
CLP – Classification, Labeling and Packaging Regulation (EC) No 1272/2008
COD – Chemical Oxygen Demand
EC – European Community
EC50 - Median Effective Concentration
EEC – European Economic Community
EINECS – European Inventory of Existing Commercial Chemical Substances
EmS-No. (Fire) - IMDG Emergency Schedule Fire
EmS-No. (Spillage) - IMDG Emergency Schedule Spillage
EU – European Union
ErC50 - EC50 in Terms of Reduction Growth Rate
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC Code - International Bulk Chemical Code
IMDG - International Maritime Dangerous Goods
IPRV - Ilgalaikio Poveikio Ribinis Dydis
IOELV – Indicative Occupational Exposure Limit Value
LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose

MARPOL - International Convention for the Prevention of Pollution
NDS - Najwyższe Dopuszczalne Stezenie
NDSCh - Najwyższe Dopuszczalne Stezenie Chwilowe
NDSP - Najwyższe Dopuszczalne Stezenie Pulapowe
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
NRD - Nevirsytinas Ribinis Dydis
NTP – National Toxicology Program
OEL - Occupational Exposure Limits
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
pH – Potential Hydrogen
REACH – Registration, Evaluation, Authorisation, and Restriction of Chemicals
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail
SADT - Self Accelerating Decomposition Temperature
SDS - Safety Data Sheet
STEL - Short Term Exposure Limit
TA-Luft - Technische Anleitung zur Reinhaltung der Luft
TEL TRK – Technical Guidance Concentrations
ThOD – Theoretical Oxygen Demand
TLM - Median Tolerance Limit
TLV - Threshold Limit Value
TPRD - Trumpalaikio Poveikio Ribinis Dydis
TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
TRGS 552 – Technische Regeln für Gefahrstoffe - N-Nitrosamine
TRGS 900 - Technische Regel für Gefahrstoffe 900 – Arbeitsplatzgrenzwerte
TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte

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LOAEL - Lowest Observed Adverse Effect Level

LOEC - Lowest-Observed-Effect Concentration

Log Koc - Soil Organic Carbon-water Partitioning Coefficient

Log Kow - Octanol/water Partition Coefficient

Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water

MAK – Maximum Workplace Concentration/Maximum Permissible Concentration

TSCA - Toxic Substances Control Act

TWA - Time Weighted Average

VOC – Volatile Organic Compounds

VLA-EC - Valor Límite Ambiental Exposición de Corta Duración

VLA-ED - Valor Límite Ambiental Exposición Diaria

VLE – Valeur Limite D'exposition

VME – Valeur Limite De Moyenne Exposition

vPvB - Very Persistent and Very Bioaccumulative

WEL – Workplace Exposure Limit

WGK - Wassergefährdungsklasse

EU GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.