SAFETY DATA SHEET

DDC Aqua Shield

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

1.1. Product identifier

Trade name

DDC Aqua Shield

Unique formula identifier (UFI)

0X90-10RJ-E00D-TNGN

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

Relevant identified uses of the substance or mixture

None known.
Restricted to professional users.

Uses advised against

None known.

1.3. Details of the supplier of the safety data sheet

Company and address

The Fulcrum
Vantage Way
Poole
Dorset
BH12 4NU
United Kingdom
+44 (0)1202 731 555

E-mail

info@ddcdolphin.com

Revision

06/05/2025

SDS Version

1.0

1.4. Emergency telephone number

Healthcare professionals: Dial 0344 892 0111 to reach The National Poisons Information Service (NPIS) (24 hour service)
General public:
England - Dial 111 to reach NHS 111 (24 hour service)
Scotland - Dial 112 to reach NHS 24 (24 hour service)
Wales - Dial 111 or 0845 4647 to reach NHS Direct (24 hour service)
See section 4 “First aid measures”.

SECTION 2: Hazards identification

Classified according to Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

2.1. Classification of the substance or mixture

Skin Irrit. 2; H315, Causes skin irritation.
Eye Irrit. 2; H319, Causes serious eye irritation.

2.2. Label elements

Hazard pictogram(s)

Signal word

Warning

Hazard statement(s)

Causes skin irritation. (H315)
Causes serious eye irritation. (H319)

Precautionary statement(s)

General

-

Prevention

Wash hands thoroughly after handling. (P264)
Wear protective gloves/protective clothing/eye protection/face protection. (P280)

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
If eye irritation persists: Get medical advice/attention. (P337+P313)

Storage

-

Disposal

-

Hazardous substances

Does not contain any substances required to report

Additional labelling

UFI: 0X90-10RJ-E00D-TNGN

2.3. Other hazards

Additional warnings

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.
This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2023/707.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable. This product is a mixture.

3.2. Mixtures

Product/substance	Identifiers	% w/w	Classification	Note
Tetrasodium (1-hydroxyethylidene)bisphosphonate	CAS No.: 3794-83-0 EC No.: 223-267-7 UK-REACH: Index No.:	15-25%	Acute Tox. 4, H302 (ATE: 940.00 mg/kg) Eye Irrit. 2, H319 (SCL: 30.00 %)	
Sodium hydroxide; caustic soda	CAS No.: 1310-73-2 EC No.: 215-185-5 UK-REACH: Index No.: 011-002-00-6	<1%	Skin Corr. 1A, H314 Skin Corr. 1B, H314 (SCL: 2.00 %) Skin Irrit. 2, H315 (SCL: 0.50 %) Eye Irrit. 2, H319 (SCL: 0.50 %)	

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information

-

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet.
Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

Skin contact

IF ON SKIN: Wash with plenty of water and soap.
Remove contaminated clothing and shoes. Ensure to wash exposed skin thoroughly with water and soap. DO NOT use solvents or thinners.
If skin irritation occurs: Get medical advice/attention.

Eye contact

If in eyes: Flush eyes immediately with plenty of water or isotonic water (20-30 °C) for at least 5 minutes and continue until irritation stops. Remove contact lenses. Make sure to flush under upper and lower eyelids. If irritation continues, contact a doctor. Continue flushing during transport.

Ingestion

If the person is conscious, rinse the mouth with water and stay with the person. Never give the person anything to drink.
In case of malaise, seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the person lean forward with head down to avoid inhalation of or choking on vomited material.

Burns

Not applicable.

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

Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

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

If eye irritation persists: Get medical advice/attention.

Information to medics

Bring this safety data sheet or the label from this product.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Not applicable.

5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.
If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:
Carbon oxides (CO / CO2)
Some metal oxides

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with spilled substances.
Ensure adequate ventilation, especially in confined areas.
Contaminated areas may be slippery.

6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.
Keep unauthorized persons away from the spill

6.3. Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous

earth and place in container for disposal according to local regulations.
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections

See section 13 “Disposal considerations” on handling of waste.
See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Smoking, drinking and consumption of food is not allowed in the work area.
See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage material

Keep only in original packaging.

Storage conditions

Do not mix with other products.
Maximum storage period:
2 years.
Storage temperature:
0 - 30 °C

Incompatible materials

Strong acids

7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sodium hydroxide; caustic soda
Short term exposure limit (15 minutes) (mg/m³): 2

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.
EH40/2005 Workplace exposure limits (Fourth Edition 2020).

DNEL

Sodium hydroxide; caustic soda

Duration:	Route of exposure:	DNEL:
Long term – Local effects - General population	Inhalation	1 mg/m³
Long term – Local effects - Workers	Inhalation	1 mg/m³

Tetrasodium (1-hydroxyethylidene)bisphosphonate

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - General population	Dermal	24 mg/kg bw/day
Long term – Systemic effects - Workers	Dermal	48 mg/kg bw/day
Long term – Local effects - General population	Inhalation	10 mg/m³
Long term – Local effects - Workers	Inhalation	10 mg/m³
Long term – Systemic effects - General population	Inhalation	4.2 mg/m³
Long term – Systemic effects - Workers	Inhalation	16.9 mg/m³
Long term – Systemic effects - General population	Oral	2.4 mg/kg bw/day

PNEC

Tetrasodium (1-hydroxyethylidene)bisphosphonate

Route of exposure:	Duration of Exposure:	PNEC:

Freshwater	0.096 mg/L
Freshwater sediment	193 mg/kg
Marine water	0.00963 mg/L
Marine water sediment	19.3 mg/kg
Sewage treatment plant	58 mg/kg
Soil	14 mg/kg

8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations

Smoking, drinking and consumption of food is not allowed in the work area.

Exposure scenarios

See the exposure scenario appended to the safety data sheet. Ensure that the operational conditions and risk management measures in the relevant exposure scenario are complied with.

Exposure limits

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

Appropriate technical measures

The formation of vapours must be kept at a minimum and below current limit values (see above). Installation of a local exhaust system if normal air flow in the work room is not sufficient is recommended. Ensure eyewash and emergency showers are clearly marked.
Apply standard precautions during use of the product. Avoid inhalation of vapours.

Hygiene measures

Take off contaminated clothing and wash it before reuse.

Measures to avoid environmental exposure

No specific requirements.

Individual protection measures, such as personal protective equipment

Generally

Use only UKCA marked protective equipment.

Respiratory Equipment

Type	Class	Colour	Standards
Respiratory protection is not needed in the event of adequate ventilation.			

Skin protection

Recommended	Type/Category	Standards
Dedicated work clothing should be worn. Wear a protective suit in the event of prolonged periods of work with the product.	-	-

Hand protection

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards
Gloves	-	-	EN374

Eye protection

Type	Standards
Safety glasses	EN ISO 16321-1

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state
Liquid

Colour
Clear, Pale yellow

Odour / Odour threshold
None

pH
10.5 - 11.4

Density (g/cm^3)
-

Relative density
1.2 - 1.3

Kinematic viscosity
No data available.

Particle characteristics
Does not apply to liquids.

Phase changes

Melting point/Freezing point (°C)
-10 to -5

Softening point/range (°C)
Does not apply to liquids.

Boiling point (°C)
No data available.

Vapour pressure
No data available.

Relative vapour density
No data available.

Decomposition temperature (°C)
No data available.

Data on fire and explosion hazards

Flash point (°C)
No data available.

Flammability (°C)
No data available.

Auto-ignition temperature (°C)
No data available.

Lower and upper explosion limit (% v/v)
No data available.

Solubility

Solubility in water
No data available.

n-octanol/water coefficient (LogKow)
No data available.

Solubility in fat (g/L)
No data available.

9.2. Other information

Oxidizing properties

No data available.

Other physical and chemical parameters

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in section 7 “Handling and storage”.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

Avoid formation of vapours.

10.5. Incompatible materials

Strong acids
Reducing agents
Strong oxidizing agents

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law

Acute toxicity

Product/substance	Tetrasodium (1-hydroxyethylidene)bisphosphonate
Species:	Rat
Route of exposure:	Oral
Test:	LD50
Result:	940.0 mg/kg

Product/substance	Tetrasodium (1-hydroxyethylidene)bisphosphonate
Species:	Rabbit
Route of exposure:	Dermal
Test:	LD50
Result:	>5000 mg/kg

Product/substance	Sodium hydroxide; caustic soda
Species:	Rat
Route of exposure:	Oral
Test:	LC50
Result:	> 2000 mg/kg

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

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

Causes serious eye irritation.

Respiratory sensitisation

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

Skin sensitisation

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

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.

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

Long term effects
Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

Endocrine disrupting properties
This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

Other information
None known.

SECTION 12: Ecological information

12.1. Toxicity

Product/substance	Tetrasodium (1-hydroxyethylidene)bisphosphonate
Species:	Fish, Oncorhynchus mykiss
Duration:	96 hours
Test:	LC50
Result:	278 mg/L

Product/substance	Tetrasodium (1-hydroxyethylidene)bisphosphonate
Species:	Daphnia, Daphnia magna
Duration:	48 hours
Test:	EC50
Result:	754 mg/L

Product/substance	Tetrasodium (1-hydroxyethylidene)bisphosphonate
Species:	Daphnia, Daphnia magna
Duration:	28 days
Test:	NOEC
Result:	9.63 mg/L

Product/substance	Sodium hydroxide; caustic soda
Species:	Fish
Duration:	96 hours
Test:	LC50
Result:	33 - 189 mg/L

Product/substance	Sodium hydroxide; caustic soda
Species:	Fish, Oncorhynchus mykiss
Duration:	96 hours
Test:	LC50
Result:	45.5 mg/L

Product/substance	Sodium hydroxide; caustic soda
Species:	Fish, Gambusia affinis
Duration:	96 hours
Test:	LC50
Result:	125 mg/L

Product/substance	Sodium hydroxide; caustic soda
Species:	Daphnia, Daphnia magna
Duration:	48 hours
Test:	EC50
Result:	40 - 240 mg/L

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

12.2. Persistence and degradability

Product/substance: Tetrasodium (1-hydroxyethylidene)bisphosphonate
Conclusion: Not biodegradable

Product/substance: Sodium hydroxide; caustic soda
Conclusion: Not biodegradable

12.3. Bioaccumulative potential

Product/substance: Tetrasodium (1-hydroxyethylidene)bisphosphonate
LogKow: < -3.0
Conclusion: Potential for bioaccumulation is very low

Product/substance: Sodium hydroxide; caustic soda
Conclusion: Bioaccumulation is not expected

12.4. Mobility in soil

Tetrasodium (1-hydroxyethylidene)bisphosphonate
LogKoc = 4.2, Low mobility potential.

12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

12.6. Endocrine disrupting properties

Product/substance: Tetrasodium (1-hydroxyethylidene)bisphosphonate
Conclusion: No adverse effect observed

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

12.7. Other adverse effects

None known.

SECTION 13: Disposal considerations

Waste treatment methods

Product is not covered by regulations on dangerous waste.
Dispose of contents/container to an approved waste disposal plant.
Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

EWC code

Not applicable.

Specific labelling

Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: Transport information

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR	-	-	-	-	-	-
IMDG	-	-	-	-	-	-
IATA	-	-	-	-	-	-

* Packing group

** Environmental hazards

Additional information

Not dangerous goods according to ADR, IATA and IMDG.

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: Regulatory information

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

Restrictions for application

Restricted to professional users.

Demands for specific education

No specific requirements.

Control of Major Accident Hazards (COMAH) - Categories / dangerous substances

Not applicable.

Additional information

Not applicable.

Sources

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.
Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

15.2. Chemical safety assessment

No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

H302, Harmful if swallowed.
H314, Causes severe skin burns and eye damage.
H315, Causes skin irritation.
H319, Causes serious eye irritation.

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CE = Conformité Européenne (European conformity)
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
CSA = Chemical Safety Assessment
CSR = Chemical Safety Report
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EuPCS = European Product Categorisation System
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
GWP = Global warming potential
IARC = International Agency for Research on Cancer (IARC)
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration

RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SCL = A specific concentration limit
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

The safety data sheet is validated by

NHP

Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a triangle.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
Country-language: GB-en

Exposure scenario: Tetrasodium (1-hydroxyethylidene)bisphosphonic acid
Professional use of cleaning products (2 of 2)

EU REACH registration number	01-2119510382-52-0006
CAS number	3794-83-0
EC number	223-267-7

1. Title of exposure scenario

Main title:	Professional use of cleaning products (2 of 2)
Product category:	PC3 Air care products. PC31 Polishes and wax blends. PC35 Washing and cleaning products PC36 Water softeners.
Environment	
Environmental release Category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Worker	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC15 Use as laboratory agent

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hands. Covers skin contact area up to 240 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.

Ventilation rate	1-3 air changes per hour

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear chemical splash goggles.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC19 Manual activities involving hand contact

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use

≤4 hours/day

Human factors not influenced by risk management

Potentially exposed body Parts	Hands and forearms. Covers skin contact area up to 1980 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.
Ventilation rate	1-3 air changes per hour

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
Efficiency of at least 80%

3. Exposure estimation (Health 1)

Process category	PROC15 Use as a laboratory reagent
Assessment method	ECETOC TRA 3.1
Exposure	PROC15 Use as a laboratory reagent Worker - inhalation, long-term - systemic: Exposure 1.225 mg/m^3, DNEL 16.9 mg/m^3, RCR 0.072 Worker - inhalation, long-term - local: Exposure 1.225 mg/m^3, DNEL 10 mg/m^3, RCR 0.123 Worker - dermal, long-term - systemic: Exposure 0.34 mg/kg, DNEL 48 mg/kg, RCR <0.01

	Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.08

4. Guidance to check compliance with exposure scenario (Health 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 2)

Process category	PROC19 Manual activities involving hand contact
Assessment method	ECETOC TRA 3.1
Exposure	PROC19 Manual activities involving hand contact Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 28.29 mg/kg, DNEL 48 mg/kg, RCR 0.589 Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.589

4. Guidance to check compliance with the exposure scenario (Health 2)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

Exposure scenario: Tetrasodium (1-hydroxyethylidene)bisphosphonic acid
Professional use of cleaning products (1 of 2)

EU REACH registration number	01-2119510382-52-0006
CAS number	3794-83-0
EC number	223-267-7

1. Title of exposure scenario

Main title: Professional use of cleaning products (1 of 2)

Product category: PC3 Air care products.
PC31 Polishes and wax blends.
PC35 Washing and cleaning products
PC36 Water softeners.

Environment

Environmental release Category: ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Worker

Process category: PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC13 Treatment of articles by dipping and pouring.
PROC15 Use as laboratory reagent.
PROC19 Manual activities involving hand contact

2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Environmental release Category: ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Amounts used

Fraction of EU tonnage used in region: 10%
Daily amount for wide dispersive uses: 0.0014 tonnes

Frequency and duration of use

Emission days: >=365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air: Release fraction to air from process (after typical onsite RMMs): 0%
Product applied in aqueous process solution with negligible volatilisation.

Emission factor - water: Release fraction to wastewater from process (initial release prior to RMM): 100%
Limit release rate to waste water to 1.4 kg/day.

Emission factor - soil	Release factor after on site Risk Management Measures: 0 % (Default)

Risk management measures

STP type	Onsite STP. , or: Municipal STP. ≥ 2000 m^3/day
STP details	Secondary biological treatment (on- or off-site) required prior to release to fresh or marine water. Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Dispose of waste in accordance with environmental legislation.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC13 Treatment of articles by dipping and pouring.

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.
Ventilation rate	1-3 air changes per hour

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear chemical splash goggles.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body Parts	Both hands. Covers skin contact area up to 960 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.
Ventilation rate	1-3 air changes per hour

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear chemical splash goggles

2. Conditions of use affecting exposure (Workers - Health 3)

Control of workers exposure

Process category	PROC10 Roller application or brushing

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Both hands. Covers skin contact area up to 960 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.
Ventilation rate	1-3 air changes per hour

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Local exhaust ventilation and/or general ventilation is good practice.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to

	minimise exposures.

Risk management measures
Wear suitable gloves (tested to EN374), coverall and eye protection.
Efficiency of at least 80%

2. Conditions of use affecting exposure (Workers - Health 4)

Control of workers exposure

Process category PROC11	Non industrial spraying

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: <=100%

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Hands and forearms. Covers skin contact area up to 1500 cm^2.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of <=40°C.
Ventilation rate	1-3 air changes per hour

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure good industrial hygiene. Ensure operatives are trained to minimise exposures.

Risk management measures
Wear suitable gloves (tested to EN374), coverall and eye protection.
Efficiency of at least 80%

3. Exposure estimation (Environment 1)

Environmental release category:
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Assessment method EUSES 2.1.2

Environmental exposure	ERC8a Widespread use of non-reactive processing aid (no Inclusion into or onto article, indoor) Fresh water: Exposure 0.016 mg/l, PNEC 0.096 mg/l, RCR 0.17 freshwater sediment: Exposure 32.62 mg/kg, PNEC 193 mg/kg, RCR 0.169 Marine water: Exposure 1.63E-3 mg/l, PNEC 9.63E-3 mg/l, RCR

0.169
marine sediment: Exposure 3.261 mg/kg, PNEC 19.3 mg/kg, RCR 0.169
STP: Exposure 0.07 mg/l, PNEC 58 mg/l, RCR <0.01
Agriculture soil: Exposure 1.119 mg/kg, PNEC 14 mg/kg, RCR 0.08

4. Guidance to check compliance with the exposure scenario (Environment 1)

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required. http://tcsweb3.jrc.it/euses/

3. Exposure estimation (Health 1)

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC13 Treatment of articles by dipping and pouring.
Assessment method	ECETOC TRA 3.1
Exposure	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 1.37 mg/kg, DNEL 48 mg/kg, RCR 0.029 Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.029 PROC4 Chemical production where opportunity for exposure arises Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 6.86 mg/kg, DNEL 48 mg/kg, RCR 0.143 Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.143 PROC13 Treatment of articles by dipping and pouring. Worker - inhalation, long-term - systemic: Exposure 1.225 mg/m^3, DNEL 16.9 mg/m^3, RCR 0.072 Worker - inhalation, long-term - local: Exposure 1.223 mg/m^3, DNEL 10 mg/m^3, RCR 0.123

Worker - dermal, long-term - systemic: Exposure 13.71 mg/kg, DNEL 48 mg/kg, RCR 0.286
Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.358

4. Guidance to check compliance with exposure scenario (Health 1)
Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 2)

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
Assessment method	ECETOC TRA 3.1
Exposure	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 13.71 mg/kg, DNEL 48 mg/kg, RCR 0.286 Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.286

4. Guidance to check compliance with the exposure scenario (Health 2)
Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 3)

Process category	PROC10 Roller application or brushing
Assessment method	ECETOC TRA 3.1
Exposure	PROC10 Roller application or brushing Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 5.486 mg/kg, DNEL 48 mg/kg, RCR 0.114

	Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.114

4. Guidance to check compliance with the exposure scenario (Health 3)
Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 4)

Process category	PROC11 Non industrial spraying
Assessment method	ECETOC TRA 3.1
Exposure	PROC11 Non industrial spraying Worker - inhalation, long-term - systemic: Exposure 2.4E-8 mg/m^3, DNEL 16.9 mg/m^3, RCR <0.01 Worker - inhalation, long-term - local: Exposure 2.4E-8 mg/m^3, DNEL 10 mg/m^3, RCR <0.01 Worker - dermal, long-term - systemic: Exposure 21.43 mg/kg, DNEL 48 mg/kg, RCR 0.446 Worker - combined, long-term - systemic: Exposure , DNEL , RCR 0.446

4. Guidance to check compliance with the exposure scenario (Health 4)
Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.