Safety Data Sheet
ACTIVE ONE
Safety Data Sheet dated 21/06/2023 version 1

Attention: the numbering restarts from 1.

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

1.1. Product identifier

Mixture identification:

Trade name: ACTIVE ONE
Trade code: COLA01
UFI: N300-F07R-H00Q-AWQG

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

Recommended use: Detergent

1.3. Details of the supplier of the safety data sheet

Company: FASSA Srl
Via Lazzaris, 3 - 31027 Spresiano (TV) - ITALY
Tel. +39 0422 7222
Fax +39 0422 887509
Responsable: laboratorio.spresiano@fassabortolo.it

1.4. Emergency telephone number

NHS 111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Met. Corr. 1	May be corrosive to metals.
Skin Corr. 1B	Causes severe skin burns and eye damage.
Eye Dam. 1	Causes serious eye damage.
Aquatic Acute 1	Very toxic to aquatic life.
Aquatic Chronic 2	Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:
No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Pictograms and Signal Words

Danger

Hazard statements

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P234	Keep only in original packaging.
P260	Do not breathe fume/gas/mist/vapours/spray.
P280	Wear protective gloves/clothing and eye/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.
P501	Dispose of contents/container in accordance with national regulation.

Special Provisions:

EUH031	Contact with acids liberates toxic gas.
PACK1	The packing must be featured by a safety lock for children.
PACK2	The packing must have tactive indications of danger for blind people.
EUH206	Warning! Do not use together with other products. May release dangerous gases (chlorine).

Contains:

sodium hypochlorite, solution 14% Cl active

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Indication of ingredients for Reg. EC 648/2004: <5% non-ionic surfactants, phosphonates; 5 - 15% chlorine-based bleaching agents.

Warning: do not use in combination with other products. May form dangerous gases (chlorine).

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: ACTIVE ONE

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number
≥ 80%	sodium hypochlorite, solution 14% Cl active	CAS:7681-52-9 EC:231-668-3 Index:017-011-00-1	Met. Corr. 1, H290 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411, M-Chronic:1, M-Acute:10, EUH031 Specific Concentration Limits: 5% ≤ C < 100%: EUH031	01-2119488154-34-xxxx
≥0.3 - <0.5 %	N,N-dimethyltetradecylamine N-oxide	CAS:3332-27-2 EC:222-059-3	Acute Tox. 4, H302; Eye Dam. 1, H318; Skin Irrit. 2, H315; Aquatic Acute 1, H400; Aquatic Chronic 2, H411, M-Acute:1	01-2119949262-37-xxxx

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Remove contaminated clothing immediatley and dispose off safely.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

The symptoms and effects are as expected from the hazards as shown in section 2.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Product is not flammable.

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Burning produces heavy smoke.

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

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Material suitable for collection: inert absorbent material (e.g. sand, vermiculite)

After the product has been recovered, rinse the area and materials involved with water.

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Advice on general occupational hygiene:

Contamined clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a cool, well-ventilated place, away from heat.

Do not pour the product into other containers. Always use the original container.

Keep away from food, drink and feed.

Incompatible materials:

See chapter 10.5

Keep away from acids.

Instructions as regards storage premises:

Adequately ventilated premises.

Protect from frost.

7.3. Specific end use(s)

Recommendation(s)

See chapter 1.2

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Long Term mg/m3	Long Term ppm	Short Term mg/m3	Short Term ppm	Notes
sodium hypochlorite, solution 14% Cl active CAS: 7681-52-9	EU			1.5	0.5	
	ACGIH		0.1		0.4	

Predicted No Effect Concentration (PNEC) values

	PNEC Limit	Exposure Route	Exposure Frequency	Remark
sodium hypochlorite, solution 14% Cl active CAS: 7681-52-9	0.042 µg/l	Marine water		
	0.21 µg/l	Fresh Water		
	4.69 mg/l	Microorganisms in sewage treatments		
	11.1 mg/kg	Food chain		

Derived No Effect Level (DNEL) values

	Worker Industry	Worker Professional	Consumer	Exposure Route	Exposure Frequency	Remark
sodium hypochlorite, solution 14% Cl active CAS: 7681-52-9		3.1 mg/m3	3.1 mg/m3	Human Inhalation	Short Term, systemic effects	
		3.1 mg/m3	3.1 mg/m3	Human Inhalation	Short Term, local effects	
		1.55 mg/m3	1.55 mg/m3	Human Inhalation	Long Term, local effects	
		1.55 mg/m3	1.55 mg/m3	Human Inhalation	Long Term, systemic effects	
			0.26 mg/kg	Human Oral	Long Term, systemic effects	

8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction.

Eye protection:

Eye glasses with side protection (EN 166).

Protection for skin:

Use suitable clothing that provides complete protection to the skin according to activity and exposure (EN 14605/EN 13982), e.g. overall, apron, safety shoes, suitable clothing.

Protection for hands:

There is no material or combination of materials for gloves that can guarantee unlimited resistance to any individual chemical or combination of chemicals.

For prolonged or repeated handling, use chemical resistant gloves.

Suitable materials for safety gloves (EN 374/EN 16523); PVC (polyvinyl chloride): thickness >= 0.4 mm; permeation time >= 480 min.

The choice of suitable gloves does not only depend on the material, but also on other quality characteristics that vary from one manufacturer to another and on the manner and times according to which the mixture is used.

Respiratory protection:

If workers are exposed to concentrations above the exposure limit they must use appropriate, certified respirators.

Combination filtering device (EN 14387).

Environmental exposure controls:

See point 6.2

Hygienic and Technical measures

See section 7.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance: Liquid
Color: yellow
Odour: Characteristic
Melting point / freezing point: N.D.
Initial boiling point and boiling range: N.D.
Flammability: N.A.
Upper/lower flammability or explosive limits: N.D.
Flash point: > 60°C / 93°C
Auto-ignition temperature: N.D.
Decomposition temperature: N.D.
pH: >=11.50<=12.50 (Internal method)
Kinematic viscosity: N.A.
Relative density: 1,19 kg/l (Internal method)
Vapour density: N.D.
Vapour pressure: N.D.
Solubility in water: miscible in all ratio
Solubility in oil: N.A.
Partition coefficient (n-octanol/water): N.A.
Particle characteristics:
Particle size: N.A.

9.2. Other information

Conductivity: N.D.
Explosive properties: N.A. (Internal assessment)
Metal corrosion rate: 7.00
Oxidizing properties: N.A. (Internal assessment)
Evaporation rate: N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

It may generate flammable gases on contact with halogenated organic substances, and elementary metals.

10.4. Conditions to avoid

Keep away from heat sources.
Avoid contact with acids and metals (aluminium and its alloys, zinc).

10.5. Incompatible materials

See chapter 10.3

10.6. Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.
See chapter 5.2

SECTION 11: Toxicological information

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

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	The product is classified: Skin Corr. 1B(H314)
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met

h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

sodium hypochlorite, solution 14% Cl active	a) acute toxicity	LD50 Oral Rat 1100 mg/kg
		LD50 Skin Rabbit 20000 mg/kg
		LC50 Inhalation Rat 10500 mg/m3 1h

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

Adopt good working practices, so that the product is not released into the environment.

12.1. Toxicity

Eco-Toxicological Information:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Acute 1(H400), Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
sodium hypochlorite, solution 14% Cl active	CAS: 7681-52-9 - EINECS: 231-668-3 - INDEX: 017-011-00-1	a) Aquatic acute toxicity : LC50 Fish 0.032 mg/l 96h
		a) Aquatic acute toxicity : EC50 Crustaceans 0.165 mg/l 48h
		a) Aquatic acute toxicity : EC50 Algae 0.05 mg/l 72h
		b) Aquatic chronic toxicity : NOEC Fish 0.04 mg/l 28d
		b) Aquatic chronic toxicity : NOEC Crustaceans 0.007 mg/l - 14d
		b) Aquatic chronic toxicity : NOEC Algae 0.02 mg/l 96h

12.2. Persistence and degradability

Component	Persitence/Degradability:
sodium hypochlorite, solution 14% Cl active	Not persistent and Biodegradable

12.3. Bioaccumulative potential

N.A.

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT/vPvB in percentage ≥ 0.1%.

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects

N.A.

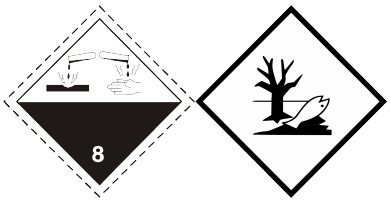
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

Do not allow it to enter drains or watercourses.
Dispose of containers contaminated by the product in accordance with local or national legal provisions.

SECTION 14: Transport information



14.1. UN number or ID number

1791

14.2. UN proper shipping name

ADR-Shipping Name: HYPOCHLORITE SOLUTION
IATA-Technical name: HYPOCHLORITE SOLUTION
IMDG-Technical name: HYPOCHLORITE SOLUTION

14.3. Transport hazard class(es)

ADR-Class: 8
IATA-Class: 8
IMDG-Class: 8

14.4. Packing group

ADR-Packing Group: II
IATA-Packing group: II
IMDG-Packing group: II

14.5. Environmental hazards

Marine pollutant: Yes
Environmental Pollutant: Yes
IMDG-EMS: F-A, S-B

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 8
ADR - Hazard identification number: 80
ADR-Special Provisions: 521
ADR-Transport category (Tunnel restriction code):

Air (IATA):

IATA-Passenger Aircraft: 851
IATA-Cargo Aircraft: 855
IATA-Label: 8
IATA-Subsidiary hazards: -
IATA-Erg: 8L
IATA-Special Provisions: A3 A803

Sea (IMDG):

IMDG-Stowage Code: Category B
IMDG-Stowage Note: SG20 SGG8
IMDG-Subsidiary hazards: -
IMDG-Special Provisions: 274 900

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Directive 2010/75/EU
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3

Restrictions related to the substances contained: 75

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Product belongs to category: E1	100	200
Product belongs to category: E2	200	500

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

2: Hazard to waters

SVHC Substances:

On the basis of available data, the product does not contain any SVHC in percentage ≥ 0.1%.

Indication of ingredients for Reg. EC 648/2004: <5% non-ionic surfactants, phosphonates; 5 - 15% chlorine-based bleaching agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
EUH031	Contact with acids liberates toxic gas.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.16/1	Met. Corr. 1	Substance or mixture corrosive to metals, Category 1
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.2/1B	Skin Corr. 1B	Skin corrosion, Category 1B
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008

[CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
2.16/1	On basis of test data
3.2/1B	Calculation method
3.3/1	Calculation method
4.1/A1	Calculation method
4.1/C2	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

Safety data sheets of raw materials suppliers.

CCNL - Appendix 1

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BEI: Biological Exposure Index

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DNEL: Derived No Effect Level.

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IC50: half maximal inhibitory concentration

IMDG: International Maritime Code for Dangerous Goods.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/A: Not Applicable

N/D: Not defined/ Not available

N.D.: Not available

NIOSH: National Institute for Occupational Safety and Health

NOAEL: No Observed Adverse Effect Level

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic

PGK: Packaging Instruction

PNEC: Predicted No Effect Concentration.

PSG: Passengers

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limiting Value.

TLV-TWA: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

SODIUM HYPOCHLORITE

Substance identification
Chemical Name: SODIUM HYPOCHLORITE
CAS number: 7681-52-9
Date - Version: April 2019

PROFESSIONAL USE AS A CLEANING AGENT

SECTION 1: TITLE OF THE EXPOSURE SCENARIO

Title
Professional use as a cleaning agent

List of use descriptors;
SU22: Professional uses: administration, education, entertainment, services, craftsmen
PC35 Washing and cleaning products (including solvent-based ones)

ERC
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8b Wide dispersive indoor use of reactive substances in open systems
ERC8d Wide dispersive outdoor use of processing aids in open systems
ERC8e Wide dispersive outdoor use of reactive substances in open systems

PROC
PROC5 Mixing in batch processes (multistage and/or significant contact) (PROC5)
PROC9 Transfer of chemicals into small containers (dedicated filling line)
PROC10 Application with rollers or brushes
PROC11 Professional spraying
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as a laboratory reagent

SECTION 2: OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

2.1. ENVIRONMENTAL EXPOSURE CONTROL - Exposure scenarios determining environmental exposure for ERC8a, 8b, 8d, 8e

Product features
Substance with a unique structure. Not hydrophobic. Readily biodegradable: Concentration < 5%.
European tonnage
250-450,000 tons per year of sodium hypochlorite solution.
Frequency and duration of use
Continuous release. Issue days: 360 days/year
Environmental factors not influenced by risk management
Fresh surface water dilution factor 10.
Sea water dilution factor 100.
Other operating conditions affecting environmental exposure
Avoid release to environment (surface water or soil) or wastewater. However, sodium hypochlorite disappears rapidly in all the scenarios presented, due to rapid reduction in the receiving body or in the sewer system. No release to the environment is therefore expected. In the worst case, the free available chlorine measured as total residual chlorine (TRC) is expected to be less than 1.0E-13 mg/l.
Technical conditions and measures at process level to prevent release
The practices used may vary from site to site and must comply with the Biocides Directive 98/8/EC.
Local technical conditions and measures on site to reduce or limit emissions to air and release to soil.
NaClO must be completely reduced to sodium chloride during the process to avoid critical releases to the environment.
Organizational measures to prevent/limit releases from the site
Prevent releases into the environment in accordance with legislative provisions.
Conditions and measures related to industrial or municipal wastewater plant
Wastewater treatment is required to remove all residual organic compounds and unreacted free chlorine.
Conditions and measures related to the external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2. WORKER EXPOSURE CONTROL - Exposure scenarios determining environmental exposure for PROC 5, 9, 10, 11, 13, 15

GENERAL CONDITIONS APPLICABLE TO ALL ACTIVITIES
G12 - Covers percentage substance in the product up to 25 % (unless otherwise stated).
G2 - Covers daily exposures up to 8 hours (unless otherwise stated).
OC8 - Indoor
Risk management measures and measures related to personal protection, hygiene and health evaluation: see GENERAL RISK MANAGEMENT MEASURES, appendix 1, at the end of this document.

SPECIFIC CONDITIONS APPLICABLE TO SPECIFIC ACTIVITIES

Scenarios:

PROC5: Mixing in batch processes (multistage and/or significant contact) (PROC5)

Duration of use: no specific condition
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans. Low containment process.

PROC9 Transfer of chemicals into small containers (dedicated filling line)

Duration of use: no specific condition
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans. Low containment process.

PROC10 Application with rollers or brushes

Duration of use: OC28 - Avoid carrying out activities involving exposure for more than 4 hours.
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans. Low containment process.

PROC11 Professional spraying

Duration of use: OC28 - Avoid carrying out activities involving exposure for more than 1 hour.
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans. Low containment process.

PROC13 Treatment of articles by dipping and pouring

Duration of use: OC28 - Avoid carrying out activities involving exposure for more than 4 hours.
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans. Low containment process.

PROC15 Use as a laboratory reagent

Duration of use: no specific condition
Substance concentration: no specific condition
Risk management measures: Provide a good standard of natural ventilation. Natural ventilation is that from doors, windows, etc. Controlled ventilation means that air is supplied and exchanged by fans.

SECTION 3: EXPOSURE ESTIMATIONS AND REFERENCE TO ITS ORIGIN

3.1. Environment

EE8 - Qualitative approach used to conclude safe use (see appendix 2 at the end of this document).

Predicted environmental concentrations - PECs

In accordance with the above qualitative assessment, the worst exposure concentration used as a PEC in a wastewater treatment plant is 1.0E-13 mg/l. PECs for other compartments are not applicable as sodium hypochlorite is rapidly destroyed when it comes into contact with organic and inorganic substances; it is also a non-volatile substance.

Indirect exposure of persons through the environment (oral route)

The hypochlorite does not reach the environment through the wastewater treatment system as the rapid transformation of the applied hypochlorite (understood as free available chlorine) in the treatment plant ensures there is no possible human exposure to the hypochlorite. In recreational areas located near hypochlorite-treated wastewater discharge points, the potential for exposure to hypochlorite from wastewater treatment is again negligible as there is no discharge of unreacted hypochlorite.

Given the chemical-physical characteristics of hypochlorite, no exposure through the food chain is expected to occur. No indirect exposure to hypochlorite via the environment is therefore expected.

3.2. Human health

The Advanced Reach Tool 1 model was used. (see in detail the inputs for the exposure calculation in Appendix 3, at the end of this document).

Route of exposure	PROC	Concentration of sodium hypochlorite	Risk Characterization Ratio (RCR)		
		Value	Inhalation	Dermal	Combined
Long-term exposure, local, inhalation	PROC5	1.00 mg/m³	0.65	Not applicable	Not applicable
Long-term exposure, local, inhalation	PROC9	1.10 mg/m³	0.71	Not applicable	Not applicable
Long-term exposure, local, inhalation	PROC10	1.20 mg/m³	0.77	Not applicable	Not applicable
Long-term exposure, local, inhalation	PROC11	1.00 mg/m³	0.65	Not applicable	Not applicable
Long-term exposure, local, inhalation	PROC13	1.20 mg/m³	0.77	Not applicable	Not applicable
Long-term exposure, local, inhalation	PROC15	0.85mg/m³	0.55	Not applicable	Not applicable

SECTION 4: GUIDANCE FOR END USERS TO ASSESS WHETHER THEY COMPLY WITH THE EXPOSURE SCENARIO

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 risk management measures or a site-specific CSA (chemical safety assessment) is required.

APPENDIX 1 - Qualitative evaluation - Human health

Qualitative assessment of exposure to a substance classified as R34 (Causes burns) and R37 (Irritating to respiratory system), or H314 (Causes severe skin burns and eye damage) and H335 (May cause respiratory irritation).

In the absence of dose-response data with respect to corrosion (R34 or H314) or irritation (R37 or H335) of the respiratory system, in accordance with R8 (R.8.6), a qualitative approach is adopted to assess exposure to a corrosive substance. Exposure must therefore be minimised using the appropriate general risk management measures given below (ECHA Technical Guidance Part E, Table E.3-1). When these risk management measures and operating conditions are applied, the risk of respiratory system exposure to corrosive and irritant substances is controlled.

General risk management measures for R34 and R37 or H314 and H335 classified substances (ECHA Technical Guidance Part E - Table E3-1)

Risk management measures and operational conditions

GENERAL

adequate containment.
Minimize the number of operators involved.
Process segregation.
Effective extraction of the contaminant.
Good standard of general ventilation.
Minimization of manual phases.
Avoid contact with contaminated tools and objects.
Regular cleaning of equipment and working air.
Onsite management/supervision to check that the risk management measures are being used and followed correctly.
Staff training on best practices.
Good standard of personal hygiene.

PERSONAL PROTECTIVE EQUIPMENT

Gloves suitable for the substance/application.
Covering of the skin made with an adequate material against the possibility of contact with substances.
Respirator appropriate for substance/application.
Optional face shield.
Eye protection.

APPENDIX 2 - Qualitative evaluation - Environment

Water and sediment compartment

Hypochlorite emissions to the environment from production processes are minor. The free available chlorine (FAC) in the effluent is generally measured as total residual chlorine (TRC), but it is not possible to distinguish how much refers to hypochlorite and how much to other oxidising species in the same effluent. TRC is the sum of the free available chlorine (HOCl, FAC) and combined available chlorine (RH2Cl, CAC). For sites reporting TRC levels in the effluent purely as information on the dilution factor set by the receiving body, initial local PEC values of from < 0.000006 to 0.07 mg/l have been measured. TRC values were not, however, considered applicable due to the immediate subsequent reaction with the oxidisable material present in the receiving waters, whereas any FAC residue is immediately eliminated in the receiving waters, with decay rates increasing as the discharged concentrations increase. The measured TRC values are not, therefore, directly applicable for hypochlorite exposure assessment. Rather than using the measured TRC values, FAC values were instead used to determine the PECs (predicted environmental concentrations).
In practice, hypochlorous/hypochlorite acid (below 10-35 mg/L as FAC, Vandepitte and Schowanek, 2007) do not remain in the sewer system for more than one hour after their addition. No volatilisation of the hypochlorous acid/hypochlorite is expected during sewage treatment. The FAC concentration at the end of the sewer system is estimated to be negligible with, as a worst case, a final PEC value of 1.0E-13 mg/L (Vandepitte and Schowanek, 2007). (NB: these estimated concentrations have a large margin of uncertainty but are still well below the aquatic PNEC). Although the decay of hypochlorite in rivers and the sea is lower than in the sewer system, the PEC values derived from the FAC values were considered not to differ significantly from the estimated worst case.
Since hypochlorite is rapidly destroyed in contact with organic and inorganic materials, exposures in sediments are not expected.

Terrestrial compartment (including secondary poisoning)

Possible routes of soil exposure to HOCl are through contaminated sludge or by direct application of treated water. As can be calculated with Vandepitte and Schowanek's model (for more information, refer to the European evaluation of sodium hypochlorite, 1997), it is evident that the concentrations of available HOCl in domestic sewage discharges are completely destroyed in the sewer system before reaching activated sludge treatment. HOCl is also a highly soluble molecule and is not likely to be absorbed on activated sludge. There is therefore no evidence that HOCl has the potential to contaminate activated sludge. The contamination of soils with HOCl-polluted sludge can therefore be excluded. It is also thought that secondary poisoning is not possible, as hypochlorite is quickly destroyed on contact with organic and inorganic material.

Atmospheric compartment

Hypochlorite solutions are not volatile, therefore there is no potential for airborne dispersion. Moreover, methods for determining the effects of chemicals deriving from atmospheric contamination have not yet been well developed, with the exception of inhalation studies in mammals. The methodology used to assess the hazard (and for subsequent risk characterisation) from chemicals in water and soil cannot therefore be applied to the atmosphere (ECHA CSA Part B, 2008).

APPENDIX 3 - ART Advanced Reach Tool level 2 - Values entered for the evaluation of inhalation

Contributing scenario: PROC1 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.1m²
Primary control measures: none
Secondary control measures: High level of containment
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC2 industrial
Exposure duration (min): 420
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.1m²
Primary control measures: none
Secondary control measures: Low level of containment
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC2 industrial
Activity number: 2
Exposure duration (min): 60
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer 1-10 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC3 industrial
Exposure duration (min): 420
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.1m²
Primary control measures: none
Secondary control measures: Low level of containment
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC3 industrial
Exposure duration (min): 60
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer 1-10 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC4 industrial
Exposure duration (min): 360
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.1m²
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC4 industrial
Exposure duration (min): 120
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer 1-10 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC5 industrial
Exposure duration (min): 90
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.3m²
Primary control measures: none
Secondary control measures: low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC5 industrial
Exposure duration (min): 390
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer 1-10 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC8a industrial
Exposure duration (min): 360
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer <100 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC8b industrial
Exposure duration (min): 360
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer <100 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC9 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Liquid product transfer <100 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC7 industrial
Exposure duration (min): 240
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Spray application of liquids
Activity subclass: Application in every direction; use of slightly compressed air: speed < 3 m²/min
Primary control measures: Localized ventilation/hood
Secondary control measures: medium level of containment
Segregation: none
Personal protection: complete with ventilation
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC10 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CV
Activity class: Diffusion of liquids
Activity subclass: Localized ventilation/hood
Primary control measures: Localized ventilation/hood
Secondary control measures: medium level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC13 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: surface area > 3m²
Primary control measures: Localized ventilation/hood
Secondary control measures: medium level of containment
Segregation: none
Personal protection: partial with ventilation
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC14 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Handling of contaminated objects
Activity subclass: Contamination >90%; area 1-3m²
Primary control measures: Localized ventilation/hood
Secondary control measures: medium level of containment
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC15 industrial
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <25
Near field CV / Far CL: CL
Activity class: Transfer of a liquid product <0.1 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: Localized ventilation/hood
Secondary control measures: none
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC5 professional
Exposure duration (min): 180
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Activities with open containers: open area <0.3 m²
Primary control measures: none
Secondary control measures: Low level of containment
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC5 professional
Exposure duration (min): 300
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CV
Activity class: Liquid product transfer: 1-10 l/min
Activity subclass: Falling liquids/spray loading
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC9 professional
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CV
Activity class: Transfer of a liquid product <0.1 l/min
Activity subclass: Falling liquids/spray loading
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC10 professional
Exposure duration (min): 240
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CV
Activity class: Diffusion of liquids
Activity subclass: <1m²/hour
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC11 professional
Exposure duration (min): 60
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CV
Activity class: Spray applications of liquids on surfaces
Activity subclass: Application in all directions, use of lightly compressed air; speed <3m²/min
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 3 refills per hour

Contributing scenario: PROC13 professional
Exposure duration (min): 240
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CL
Activity class: Activities with open containers
Activity subclass: Open area >1 m²
Primary control measures: none
Secondary control measures: Low level of containment
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour

Contributing scenario: PROC15 professional
Exposure duration (min): 480
Product type: liquid
Process temperature: 15-25°C
Vapor pressure at process temperature: 2500Pa
%: <5
Near field CV / Far CL: CL
Activity class: Transfer of a liquid product, <0.1 l/min
Activity subclass: Falling liquids/handling reducing product/adjacent air contact
Primary control measures: none
Secondary control measures: none
Segregation: none
Personal protection: none
Environment cleaning: Yes
Indoor/Outdoor: Inside
Room size: Every type
Ventilation Rate: 1 change per hour