

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

SODIUM HYPOCHLORITE 15% VOL. / BULK

Version 9.0

Print Date 03.12.2015

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

1.1. Product identifier

Trade name : SODIUM HYPOCHLORITE 15% VOL. / BULK
Substance name : sodium hypochlorite, solution
Index-No. : 017-011-00-1
CAS-No. : 7681-52-9
EC-No. : 231-668-3
Registration number : 01-2119488154-34-xxxx

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

Use of the Substance/Mixture : Used as:, Industrial use, Professional use, Consumer use,
Identified use: See table in front of appendix for a complete overview of identified uses.

Uses advised against : At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company : Brenntag Nordic AB
Koksgatan 18
SE 20211 Malmoe
Telephone : +46 (0)40-28 73 00
Telefax : +46 (0)40-93 7015
E-mail address : SDS.SE@brenntag-nordic.com
Responsible/issuing person : Environment & Quality

1.4. Emergency telephone number

Emergency telephone number : In case of personal injury call:
Denmark: 82 12 12 12 Giftlinien, Bispebjerg Hospital
Finland: Poison Information Centre: (09) 471 977 (direct) or (09) 47 11 (exchange), open 24h/day
Norway: 22 59 13 00 Giftinformasjonen (døgnåpent)
Sweden: +46-8-331231 Giftinformationscentralen (24 hour service)
Outside these countries: Please call your local emergency services

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

SODIUM HYPOCHLORITE 15% VOL. / BULK**Classification according to Regulation (EC) No 1272/2008**

| REGULATION (EC) No 1272/2008 | | | |
|---|-----------------|---------------|-------------------|
| Hazard class | Hazard category | Target Organs | Hazard statements |
| Corrosive to metals | Category 1 | --- | H290 |
| Specific target organ toxicity - single exposure | Category 3 | --- | H335 |
| Skin corrosion | Category 1B | --- | H314 |
| Acute aquatic toxicity | Category 1 | --- | H400 |
| Chronic aquatic toxicity | Category 2 | --- | H411 |

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

| Directive 67/548/EEC or 1999/45/EC | |
|------------------------------------|--------------|
| Hazard symbol / Category of danger | Risk phrases |
| Corrosive (C) | R34 |
| Irritant (Xi) | R37 |
| | R31 |
| Dangerous for the environment (N) | R50 |

For the full text of the R-phrases mentioned in this Section, see Section 16.

Most important adverse effects

- Human Health : The product causes burns of eyes, skin and mucous membranes.
- Physical and chemical hazards : The product is not flammable., Contact with acids liberates toxic gas.
- Potential environmental effects : Harmful effects to aquatic organisms also due to pH-shift. Very toxic to aquatic organisms.

2.2. Label elements**Labelling according to Regulation (EC) No 1272/2008**

Hazard symbols :



Signal word : Danger

SODIUM HYPOCHLORITE 15% VOL. / BULK

Hazard statements : H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.
 H335 May cause respiratory irritation.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : P273 Avoid release to the environment.
 P280 + P284 Wear respiratory protection/ protective gloves/ eye protection/ face protection.

Response : P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ 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 or doctor/ physician.

Additional Labelling:

EUH031 Contact with acids liberates toxic gas.

Hazardous components which must be listed on the label:

- sodium hypochlorite, solution
- sodium hydroxide

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.
 Warning! Do not use together with other products. May release dangerous gases (chlorine).

SECTION 3: Composition/information on ingredients

3.1. Substances

| Hazardous components | Amount [%] | Classification (REGULATION (EC) No 1272/2008) | | Classification (67/548/EEC) |
|-------------------------------|------------|---|-------------------|-----------------------------|
| | | Hazard class / Hazard category | Hazard statements | |
| sodium hypochlorite, solution | | | | |

SODIUM HYPOCHLORITE 15% VOL. / BULK

| | | | | |
|--------------|--|------------------|------|---------------------------------------|
| Index-No. | : 017-011-00-1 | Met. Corr.1 | H290 | R31 |
| CAS-No. | : 7681-52-9 | Skin Corr.1B | H314 | Corrosive; C; R34 |
| EC-No. | : 231-668-3 | Eye Dam.1 | H318 | Irritant; Xi; R37 |
| Registration | : 01-2119488154-34-xxxx >= 12,5 - < 20 | STOT SE3 | H335 | Dangerous for the environment; N; R50 |
| | | Aquatic Acute1 | H400 | |
| | | Aquatic Chronic1 | H410 | |

sodium hydroxide

| | | | | |
|-----------|------------------------|--------------|------|-------------------|
| Index-No. | : 011-002-00-6 | Met. Corr.1 | H290 | Corrosive; C; R35 |
| CAS-No. | : 1310-73-2 >= 1 - < 2 | Skin Corr.1A | H314 | |
| EC-No. | : 215-185-5 | | | |

For the full text of the R-phrases mentioned in this Section, see Section 16.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|-------------------------|--|
| General advice | : Take off all contaminated clothing immediately. |
| If inhaled | : In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately. |
| In case of skin contact | : Wash off immediately with soap and plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. |
| In case of eye contact | : Rinse immediately with plenty of water (tempered water), also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible. |
| If swallowed | : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting - seek medical advice. If a person vomits when lying on his back, place him in the recovery position. |

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

| | |
|----------|--|
| Symptoms | : See Section 11 for more detailed information on health effects and symptoms. |
| Effects | : See Section 11 for more detailed information on health effects and symptoms. |

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

| | |
|-----------|-----------------------------|
| Treatment | : No information available. |
|-----------|-----------------------------|

SECTION 5: Firefighting measures

SODIUM HYPOCHLORITE 15% VOL. / BULK**5.1. Extinguishing media**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.
- Unsuitable extinguishing media : Exempt

5.2. Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Fire may cause evolution of: Chlorine, Hydrogen chloride gas, chlorine oxides

5.3. Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Wear appropriate body protection (full protective suit)
- Further information : Cool closed containers exposed to fire with water spray. Heating will cause a pressure rise - with risk of bursting. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- Personal precautions : Use personal protective equipment. Wear respiratory protection. Keep people away from and upwind of spill/leak. Provide adequate ventilation. Danger of slipping if spilled. Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

- Environmental precautions : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

- Methods and materials for containment and cleaning up : Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal. Do not keep the container sealed.
- Further information : Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

- See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

SODIUM HYPOCHLORITE 15% VOL. / BULK

7.1. Precautions for safe handling

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin and the eyes. Do not keep the container sealed. Ensure adequate ventilation. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.

Hygiene measures : Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in a cool, well-ventilated place. Keep in an area equipped with alkali resistant flooring. Keep only in the original container. Store in a receptacle equipped with a vent. Protect against light.

Advice on protection against fire and explosion : The product is not flammable. Normal measures for preventive fire protection.

Further information on storage conditions : Keep in a well-ventilated place. Protect against light. Store in cool place. Do not keep the container sealed.

Advice on common storage : Keep away from food, drink and animal feedingstuffs. Do not store together with acids and ammonium salts.

7.3. Specific end use(s)

Specific use(s) : No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Component: | sodium hypochlorite, solution | CAS-No. |
|------------|-------------------------------|-----------|
| | | 7681-52-9 |

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL

Workers, Local effects, Acute - systemic effects, Inhalation : 3,1 mg/m³

DNEL

Workers, Local effects, Long-term - systemic effects, Inhalation : 1,55 mg/m³

DNEL

Workers, Long-term - local effects, Skin contact : 0,5 %

DNEL

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Consumers, Local effects, Long-term - systemic effects, Inhalation : 1,55 mg/m³

DNEL

Consumers, Long-term - systemic effects, Ingestion : 0,26 mg/kg

Predicted No Effect Concentration (PNEC)

Fresh water : 0,21 µg/l

Marine water : 0,042 µg/l

Sewage treatment plant (STP) : 0,03 mg/l

Intermittent releases : 0,26 µg/l

Soil :
Exposition is not expected.

Sediment (Marine water) :
Exposition is not expected.

Sediment (Fresh water) :
Exposition is not expected.

| | | |
|-------------------|-------------------------|------------------|
| Component: | sodium hydroxide | CAS-No. |
| | | 1310-73-2 |

Other Occupational Exposure Limit Values

TLV (SE), Time Weighted Average (TWA):, Inhalable dust.
1 mg/m³

TLV (SE), Ceiling Limit Value:, Inhalable dust.
2 mg/m³

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice : Use respirator with appropriate filter if vapours or aerosol are released.
Recommended Filter type:
Combination filter: B-P2
Combination filter: B-P3
For low vapor concentrations: EN 136. For higher concentrations:
EN 137

Hand protection

SODIUM HYPOCHLORITE 15% VOL. / BULK

Advice : Protective gloves complying with EN 374.
The glove material has to be impermeable and resistant to the product / the substance / the preparation.
Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
Protective gloves should be replaced at first signs of wear.

Material : butyl-rubber
Break through time : 8 h
Glove thickness : 0,5 mm

Material : Polyvinylchloride
Break through time : 8 h
Glove thickness : 0,5 mm

Material : polychloroprene
Break through time : 8 h
Glove thickness : 0,5 mm

Eye protection

Advice : Safety glasses with side-shields conforming to EN166
Tightly fitting safety goggles

Skin and body protection

Advice : alkali resistant protective clothing
(EN 340)

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
If the product contaminates rivers and lakes or drains inform respective authorities.
If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Form : liquid
Colour : yellowish green
Odour : slight chlorine
Odour Threshold : no data available

SODIUM HYPOCHLORITE 15% VOL. / BULK

| | | |
|--|---|--|
| pH | : | 11 - 12 (20 °C) |
| Freezing point | : | no data available |
| Boiling point/boiling range | : | no data available |
| Flash point | : | not applicable |
| Evaporation rate | : | no data available |
| Flammability (solid, gas) | : | The product is not flammable. |
| Upper explosion limit | : | not applicable |
| Lower explosion limit | : | not applicable |
| Vapour pressure | : | no data available |
| Relative vapour density | : | no data available |
| Density | : | 1,21 - 1,23 g/cm ³ (20 °C) |
| Water solubility | : | completely miscible |
| Partition coefficient: n-octanol/water | : | no data available |
| Auto-ignition temperature | : | not applicable |
| Thermal decomposition | : | To avoid thermal decomposition, do not overheat. |
| Viscosity, dynamic | : | no data available |
| Explosive properties | : | EU legislation: Not explosive |
| Explosivity | : | Product is not explosive. |
| Oxidizing properties | : | Oxidizing agents |

9.2. Other information

| | | |
|---------------------|---|---------------------|
| Corrosion to metals | : | Corrosive to metals |
|---------------------|---|---------------------|

SECTION 10: Stability and reactivity**10.1. Reactivity**

| | | |
|--------|---|---|
| Advice | : | Contact with acids liberates toxic gas. |
|--------|---|---|

10.2. Chemical stability

| | | |
|--------|---|--|
| Advice | : | Decomposes on heating. Decomposes on exposure to light. |
|--------|---|--|

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10.3. Possibility of hazardous reactions

Hazardous reactions : May develop chlorine if mixed with acidic solutions.

10.4. Conditions to avoid

Thermal decomposition : To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Materials to avoid : Acids, ammonium compounds, Acetic anhydride, Organic materials, Hydrogen peroxide, metal salts, Copper, Nickel, Iron

10.6. Hazardous decomposition products

Hazardous decomposition products : Hydrogen chloride gas, Chlorine, chlorine oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Oral

Cause serious burns with severe pains, vomiting, pains in the stomach, possibly chock and damaged kidneys. The burn may occur even if only small amounts have been swallowed.

Inhalation

Inhalation may cause pain and cough.
Inhalation of aerosols/vapours may during a couple of hours cause liquid in the lungs (edema).

Irritation

Skin

Result : May cause burns with pain, redness and wounds.

Eyes

Result : Splashes in the eyes may cause painful burns, which may result in permanent damage to the eyes.

Component: sodium hypochlorite, solution

CAS-No.
7681-52-9

Acute toxicity

SODIUM HYPOCHLORITE 15% VOL. / BULK**Oral**

LD50 : > 1100 mg/kg (rat; Test substance: Chlorine) (OECD Test Guideline 401)

Inhalation

LC50 : > 10,5 mg/l (rat; 1 h; Test substance: Chlorine) (OECD Test Guideline 403)

Dermal

LD50 : > 20000 mg/kg (rabbit; Test substance: Chlorine) (OECD Test Guideline 402)

Irritation**Skin**

Result : Severe skin irritation (rabbit) (OECD Test Guideline 404)
corrosive effects (human)

Eyes

Result : corrosive effects (rabbit) (OECD Test Guideline 405)
Risk of serious damage to eyes.

Sensitisation

Result : not sensitizing (Buehler Test; guinea pig) (OECD Test Guideline 406)

CMR effects**CMR Properties**

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

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

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

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

Teratogenicity

NOAEL : 5,7 mg/kg
Teratog. (rat)

SODIUM HYPOCHLORITE 15% VOL. / BULK

Test substance
Chlorine

Reproductive toxicity

NOAEL
Parent

5 mg/kg

(rat)
(Oral)
Effects on fertility
Test substance
Chlorine

Specific Target Organ Toxicity**Single exposure**

Inhalation : May cause respiratory irritation.
Experience with human exposure

Repeated exposure

remark : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties**Repeated dose toxicity**

NOAEL : 50 mg/kg

(rat)
(Oral; 90 Days) (OECD Test Guideline 408)

Aspiration hazard

No aspiration toxicity classification

SECTION 12: Ecological information**12.1. Toxicity**

| | | |
|-------------------|--------------------------------------|------------------------------------|
| Component: | sodium hypochlorite, solution | CAS-No. 7681-52-9 |
|-------------------|--------------------------------------|------------------------------------|

Acute toxicity**Fish**

LC50 : 0,06 mg/l (Salmo gairdneri; 96 h)

NOEC : 0,04 mg/l (Menidia peninsulae (tidewater silverside); 96 h)

SODIUM HYPOCHLORITE 15% VOL. / BULK
Toxicity to daphnia and other aquatic invertebrates

EC50 : 0,141 mg/l (Daphnia magna (Water flea); 48 h)

algae

NOEC : 0,0021 mg/l (algae; 7 Days)

M-Factor

M-Factor (Acute Aquat. Tox.) : 10

M-Factor (Chron. Aquat. Tox.) : 1

12.2. Persistence and degradability

| | | |
|-------------------|--------------------------------------|------------------|
| Component: | sodium hypochlorite, solution | CAS-No. |
| | | 7681-52-9 |

Persistence and degradability
Persistence

Result : The product can be degraded by abiotic (e.g. chemical or photolytic) processes.
decomposition by hydrolysis.

Biodegradability

Result : The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

| | | |
|-------------------|--------------------------------------|------------------|
| Component: | sodium hypochlorite, solution | CAS-No. |
| | | 7681-52-9 |

Bioaccumulation

Result : Does not bioaccumulate.

12.4. Mobility in soil

SODIUM HYPOCHLORITE 15% VOL. / BULK

| | | |
|-------------------|--------------------------------------|------------------------------------|
| Component: | sodium hypochlorite, solution | CAS-No. 7681-52-9 |
|-------------------|--------------------------------------|------------------------------------|

Mobility

Water : The product is mobile in water environment.

Soil : Highly mobile in soils

Air : not volatile (Henry's Constant)

12.5. Results of PBT and vPvB assessment

| | | |
|-------------------|--------------------------------------|------------------------------------|
| Component: | sodium hypochlorite, solution | CAS-No. 7681-52-9 |
|-------------------|--------------------------------------|------------------------------------|

Results of PBT and vPvB assessment

Result : not applicable

12.6. Other adverse effects

Additional ecological information

Result : Do not flush into surface water or sanitary sewer system.
Very toxic to aquatic organisms.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Eliminate waste in conditions authorized by the regulations. Store waste in containers provided for this purpose. Do not dump in drains, water sheets or the ground.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

SODIUM HYPOCHLORITE 15% VOL. / BULK**14.1. UN number**

1791

14.2. UN proper shipping name

ADR : HYPOCHLORITE SOLUTION
RID : HYPOCHLORITE SOLUTION
IMDG : HYPOCHLORITE SOLUTION

14.3. Transport hazard class(es)

ADR-Class : 8
(Labels; Classification Code; Hazard identification No; Tunnel restriction code) 8; C9; 80; (E)
RID-Class : 8
(Labels; Classification Code; Hazard identification No) 8; C9; 80
IMDG-Class : 8
(Labels; EmS) 8; F-A, S-B

14.4. Packaging group

ADR : III
RID : III
IMDG : III

14.5. Environmental hazards

Labeling according to 5.2.1.8 ADR : Fish and tree
Labeling according to 5.2.1.8 RID : Fish and tree
Labeling according to 5.2.1.6.3 IMDG : Fish and tree
Classification as environmentally hazardous according to 2.9.3 IMDG : yes
Classified as "P" according to 2.10 IMDG : no

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

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

Other regulations : Exposure limits in accordance to local regulations

15.2. Chemical Safety Assessment

SODIUM HYPOCHLORITE 15% VOL. / BULK

no data available

SECTION 16: Other information**Full text of R-phrases referred to under sections 2 and 3.**

| | |
|-----|---|
| R31 | Contact with acids liberates toxic gas. |
| R34 | Causes burns. |
| R35 | Causes severe burns. |
| R37 | Irritating to respiratory system. |
| R50 | Very toxic to aquatic organisms. |

Full text of H-Statements referred to under sections 2 and 3.

| | |
|------|---|
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic to aquatic life with long lasting effects. |

Further information

Key literature references : Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.

Other information : Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

|| Indicates updated section.

SODIUM HYPOCHLORITE 15% VOL. / BULK

| No. | Short title | Main User Group (SU) | Sector of Use (SU) | Product Category (PC) | Process Category (PROC) | Environmental Release Category (ERC) | Article Category (AC) | Specified |
|-----|--|----------------------|--------------------|-----------------------|----------------------------------|--------------------------------------|-----------------------|-----------|
| 1 | Manufacture of substance | 3 | 8 | NA | 1, 2, 3, 4, 8a, 8b, 9 | 1 | NA | ES447 |
| 2 | Use as an intermediate | 3 | 8, 9 | 19 | 1, 2, 3, 4, 8a, 8b, 9 | 6a | NA | ES9182 |
| 3 | Formulation & (re)packing of substances and mixtures | 3 | 10 | NA | 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 | 2 | NA | ES9179 |
| 4 | Use in Cleaning Agents | 3 | 4 | 35 | 5, 7, 8a, 9, 10, 13 | 6b | NA | ES9191 |
| 5 | Use in Cleaning Agents | 22 | NA | 35 | 5, 9, 10, 11, 13, 15 | 8a, 8b, 8d, 8e | NA | ES538 |
| 6 | Use in sewage water treatment | 3 | 23 | 20, 37 | 1, 2, 3, 4, 5, 8a, 8b, 9 | 6b | NA | ES9187 |
| 7 | Use in textile industry | 3 | 5 | 34 | 1, 2, 3, 4, 5, 8a, 8b, 9, 13 | 6b | NA | ES9185 |
| 8 | Use in paper industry | 3 | 6b | 26 | 1, 2, 3, 4, 5, 8a, 8b, 9 | 6b | NA | ES9189 |
| 9 | Consumer use | 21 | NA | 34, 35, 37 | NA | 8a, 8b, 8d, 8e | NA | ES653 |

SODIUM HYPOCHLORITE 15% VOL. / BULK

1. Short title of Exposure Scenario 1: Manufacture of substance

| | |
|----------------------------------|--|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU8: Manufacture of bulk, large scale chemicals (including petroleum products) |
| Process categories | <p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> |
| Environmental Release Categories | ERC1: Manufacture of substances |

2.1 Contributing scenario controlling environmental exposure for: ERC1

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

| | | |
|-------------------------|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
|-------------------------|---|--|

SODIUM HYPOCHLORITE 15% VOL. / BULK

| | | |
|--|---|---------------------------|
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor/Outdoor use. | |
| | Assumes activities are at ambient temperature. | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |
| Risk Management Measures are based on qualitative risk characterisation. | | |

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

EU RAR

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|----------------------------|-----------------------|--|------------------------|--------|
| Relevant for all PROCs | --- | Worker - inhalative, long-term - local and systemic. | 0,705mg/m ³ | 0,4548 |
| PROC1, PROC2, PROC3, PROC4 | General exposures | Worker - inhalative, short-term - local and systemic | 0,540mg/m ³ | 0,1742 |
| PROC1, PROC2, PROC3, PROC4 | Laboratory activities | Worker - inhalative, short-term - local and systemic | 0,252mg/m ³ | 0,081 |
| PROC1, PROC2, PROC3, PROC4 | Equipment maintenance | Worker - inhalative, short-term - local and systemic | 0,480mg/m ³ | 0,155 |
| PROC8a, PROC8b, PROC9 | --- | Worker - inhalative, short-term - local and systemic | 0,498mg/m ³ | 0,161 |

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the

SODIUM HYPOCHLORITE 15% VOL. / BULK**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.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

| 1. Short title of Exposure Scenario 2: Use as an intermediate | | |
|--|---|---|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites | |
| Sectors of end-use | SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals | |
| Chemical product category | PC19: Intermediate | |
| Process categories | PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | |
| Environmental Release Categories | ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) | |
| 2.1 Contributing scenario controlling environmental exposure for: ERC6a | | |
| Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate | | |
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |
| 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9 | | |
| Product characteristics | Concentration of the | Covers percentage substance in the product up to |
| R19960 / Version 9.0 | | |
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| | | |
|--|---|---------------------------|
| | Substance in Mixture/Article | 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor use. | |
| | Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |
| Risk Management Measures are based on qualitative risk characterisation. | | |

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

Advanced REACH Tool (ART model)

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|--|-----------------------|------|
| PROC1 | --- | Worker - inhalative, long-term - local | 0,02mg/m ³ | 0,01 |
| PROC2, PROC3 | --- | Worker - inhalative, long-term - local | 1,10mg/m ³ | 0,71 |
| PROC4 | --- | Worker - inhalative, long-term - local | 1,20mg/m ³ | 0,77 |
| PROC8a, PROC8b | --- | Worker - inhalative, long-term - local | 1,25mg/m ³ | 0,81 |
| PROC9 | --- | Worker - inhalative, long-term - local | 0,91mg/m ³ | 0,59 |

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures

| | |
|----------------------------------|--|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) |
| Process categories | <p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC14: Production of preparations or articles by tableting, compression, extrusion, pelettisation</p> <p>PROC15: Use as laboratory reagent</p> |
| Environmental Release Categories | ERC2: Formulation of preparations |

2.1 Contributing scenario controlling environmental exposure for: ERC2

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

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PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

| | | |
|--|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor/Outdoor use. | |
| | Assumes activities are at ambient temperature. | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. Ensure samples are obtained under containment or extract ventilation. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

EU RAR

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|--|-----------------------|--|------------------------|--------|
| PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15 | --- | Worker - inhalative, long-term - local and systemic. | 0,705mg/m ³ | 0,4548 |
| PROC1, PROC2, PROC3, PROC4, PROC5 | General exposures | Worker - inhalative, short-term - local and systemic | 0,540mg/m ³ | 0,1742 |
| PROC1, PROC2, PROC3, PROC4, PROC5 | Laboratory activities | Worker - inhalative, short-term - local and systemic | 0,252mg/m ³ | 0,081 |

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| | | | | |
|---|-----------------------|--|------------------------|-------|
| PROC1, PROC2, PROC3, PROC4, PROC5 | Equipment maintenance | Worker - inhalative, short-term - local and systemic | 0,480mg/m ³ | 0,155 |
| PROC8a, PROC8b, PROC9 | --- | Worker - inhalative, short-term - local and systemic | 0,498mg/m ³ | 0,161 |
| PROC14 | --- | Worker - inhalative, long- term | 0,23mg/m ³ | 0,15 |

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

1. Short title of Exposure Scenario 4: Use in Cleaning Agents

| | |
|----------------------------------|---|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU4: Manufacture of food products |
| Chemical product category | PC35: Washing and cleaning products (including solvent based products) |
| Process categories | PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring |
| Environmental Release Categories | ERC6b: Industrial use of reactive processing aids |
| Activity | Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered, Covers a technical use, not intended to be used in food, feedingstuffs or human and veterianian medicinal products, as specified in Art.2 (5)(6) of the REACH regulation |

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC7, PROC8a, PROC9, PROC10, PROC13

| | | |
|-------------------------|----------------------|--|
| Product characteristics | Concentration of the | Covers percentage substance in the product up to |
|-------------------------|----------------------|--|

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| | | |
|--|---|---------------------------|
| | Substance in Mixture/Article | 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor use. | |
| | Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

Advanced REACH Tool (ART model)

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|--|-----------------------|------|
| PROC5, PROC8a | --- | Worker - inhalative, long-term - local | 1,25mg/m ³ | 0,81 |
| PROC7 | --- | Worker - inhalative, long-term - local | 1,20mg/m ³ | 0,77 |
| PROC9 | --- | Worker - inhalative, long-term - local | 0,91mg/m ³ | 0,59 |
| PROC10 | --- | Worker - inhalative, long-term - local | 1,00mg/m ³ | 0,65 |
| PROC13 | --- | Worker - inhalative, long-term - local | 0,70mg/m ³ | 0,45 |

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

SODIUM HYPOCHLORITE 15% VOL. / BULK

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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

1. Short title of Exposure Scenario 5: Use in Cleaning Agents

| | |
|----------------------------------|---|
| Main User Groups | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Chemical product category | PC35: Washing and cleaning products (including solvent based products) |
| Process categories | PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent |
| Environmental Release Categories | 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 |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product : 0% - 10% |
| Amount used | Amounts used in the EU (tonnes/year) | 999999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Do not let product enter drains., Onsite wastewater treatment required |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC9, PROC10, PROC11, PROC13, PROC15

| | | |
|-------------------------|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product : 0% - 10% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |

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| | | |
|--|--|-------------|
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Other operational conditions affecting workers exposure | Indoor/Outdoor use. | |
| | Assumes activities are at ambient temperature. | |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures. | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection Personal measures have to be applied in case of potential exposure only. | |

Risk Management Measures are based on qualitative risk characterisation.

2.3 Contributing scenario controlling worker exposure for: PROC11

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product: 0% - 0.05% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Amount used | | 0,005 kg |
| Frequency and duration of use | Exposure duration | 120 min |
| | Frequency of use | 4 Times per day |
| Other operational conditions affecting workers exposure | Indoor/Outdoor use. | |
| | Assumes activities are at ambient temperature. | |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures. | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection | |

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

EASE v2.0

SODIUM HYPOCHLORITE 15% VOL. / BULK

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|---|-------------------------|--------|
| PROC11 | --- | Worker - inhalative, long-term - systemic | 0,0017mg/m ³ | 0,0011 |

Qualitative assessment dermal. Contact is only accidental. Exposure is considered negligible.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
 Ensure that gas alarms are installed
 Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

| 1. Short title of Exposure Scenario 6: Use in sewage water treatment | | |
|--|--|---|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites | |
| Sectors of end-use | SU23: Electricity, steam, gas water supply and sewage treatment | |
| Chemical product category | PC20: Products such as ph-regulators, flocculants, precipitants, neutralization agents PC37: Water treatment chemicals | |
| Process categories | PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | |
| Environmental Release Categories | ERC6b: Industrial use of reactive processing aids | |
| 2.1 Contributing scenario controlling environmental exposure for: ERC6b | | |
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |
| 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 | | |
| Product characteristics | Concentration of the | Covers percentage substance in the product up to |

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| | | |
|--|---|---------------------------|
| | Substance in Mixture/Article | 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor use. | |
| | Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |
| Risk Management Measures are based on qualitative risk characterisation. | | |

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

Advanced REACH Tool (ART model)

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|--|-----------------------|------|
| PROC1 | --- | Worker - inhalative, long-term - local | 0,02mg/m ³ | 0,01 |
| PROC2, PROC3 | --- | Worker - inhalative, long-term - local | 1,10mg/m ³ | 0,71 |
| PROC4 | --- | Worker - inhalative, long-term - local | 1,20mg/m ³ | 0,77 |
| PROC5, PROC8a, PROC8b | --- | Worker - inhalative, long-term - local | 1,25mg/m ³ | 0,81 |
| PROC9 | --- | Worker - inhalative, long-term - local | 0,91mg/m ³ | 0,59 |

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the

SODIUM HYPOCHLORITE 15% VOL. / BULK**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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

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1. Short title of Exposure Scenario 7: Use in textile industry

| | |
|----------------------------------|---|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU5: Manufacture of textiles, leather, fur |
| Chemical product category | PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids |
| Process categories | <p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC13: Treatment of articles by dipping and pouring</p> |
| Environmental Release Categories | ERC6b: Industrial use of reactive processing aids |

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m ³ /d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m ³ /d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13

| | | |
|--|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor use. | |
| | Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |
| Risk Management Measures are based on qualitative risk characterisation. | | |

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

Advanced REACH Tool (ART model)

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|--|-----------------------|------|
| PROC1 | --- | Worker - inhalative, long-term - local | 0,02mg/m ³ | 0,01 |
| PROC2, PROC3 | --- | Worker - inhalative, long-term - local | 1,10mg/m ³ | 0,71 |
| PROC4 | --- | Worker - inhalative, long-term - local | 1,20mg/m ³ | 0,77 |
| PROC5, PROC8a, PROC8b | --- | Worker - inhalative, long-term - local | 1,25mg/m ³ | 0,81 |
| PROC9 | --- | Worker - inhalative, long-term - local | 0,91mg/m ³ | 0,59 |

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| | | | | |
|--------|-----|--|-----------------------|------|
| PROC13 | --- | Worker - inhalative, long-term - local | 0,70mg/m ³ | 0,45 |
|--------|-----|--|-----------------------|------|

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
 Ensure that gas alarms are installed
 Change gloves, if duration of activity exceeds breakthrough time

SODIUM HYPOCHLORITE 15% VOL. / BULK

1. Short title of Exposure Scenario 8: Use in paper industry

| | |
|----------------------------------|---|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU6b: Manufacture of pulp, paper and paper products |
| Chemical product category | PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids |
| Process categories | <p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> |
| Environmental Release Categories | ERC6b: Industrial use of reactive processing aids |

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 999,999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m ³ /d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | Soil | Substance release to soil can be excluded |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m ³ /d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

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PROC5, PROC8a, PROC8b, PROC9

| | | |
|--|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| | Process Temperature | 90 °C |
| Frequency and duration of use | Exposure duration per day | 8 h |
| | Frequency of use | 5 days/week |
| Human factors not influenced by risk management | Body weight | 70 kg |
| | Respiration volume under conditions of use | 10 m ³ /day |
| | Light activity | |
| Other operational conditions affecting workers exposure | Indoor use. | |
| | Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location | |
| Technical conditions and measures to control dispersion from source towards the worker | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. | |
| Organisational measures to prevent /limit releases, dispersion and exposure | Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus. | |
| Risk Management Measures are based on qualitative risk characterisation. | | |

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

Advanced REACH Tool (ART model)

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------|--|-----------------------|------|
| PROC1 | --- | Worker - inhalative, long-term - local | 0,02mg/m ³ | 0,01 |
| PROC2, PROC3 | --- | Worker - inhalative, long-term - local | 1,10mg/m ³ | 0,71 |
| PROC4 | --- | Worker - inhalative, long-term - local | 1,20mg/m ³ | 0,77 |
| PROC5, PROC8a, PROC8b | --- | Worker - inhalative, long-term - local | 1,25mg/m ³ | 0,81 |
| PROC9 | --- | Worker - inhalative, long-term - local | 0,91mg/m ³ | 0,59 |

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

SODIUM HYPOCHLORITE 15% VOL. / BULK**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

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1. Short title of Exposure Scenario 9: Consumer use

| | |
|----------------------------------|--|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals |
| Environmental Release Categories | 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 |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product : 0% - 10% |
| Amount used | Amounts used in the EU (tonnes/year) | 999999 ton(s)/year |
| Frequency and duration of use | Continuous exposure | 360 days/year |
| Environment factors not influenced by risk management | Flow rate of receiving surface water | 18.000 m3/d |
| | Dilution Factor (River) | 10 |
| | Dilution Factor (Coastal Areas) | 100 |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Substance release to air can be excluded |
| | Water | Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Municipal sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| Conditions and measures related to external treatment of waste for disposal | Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

| | | |
|-------------------------------|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product: 0% - 3% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| Amount used | Amount used per event | 0,005 kg |
| Frequency and duration of use | Exposure duration | 7,5 min |

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| | | |
|--|---|---|
| | Frequency of use | 4 Times per day |
| Other given operational conditions affecting consumers exposure | Indoor use. | |
| | Room size | 4 m3 |
| | Ventilation rate per hour | 0,5 |
| 2.3 Contributing scenario controlling consumer exposure for: PC35 | | |
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product: 0% - 0,5% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| Frequency and duration of use | Frequency of use | 1 Times per day |
| Human factors not influenced by risk management | Exposed skin areas | Palm of one Hand 420 cm ² |
| Other given operational conditions affecting consumers exposure | Indoor use. | |
| | Room size | 4 m3 |
| | Ventilation rate per hour | 0,5 |
| Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene) | Consumer Measures | Wear impervious chemical resistant protective gloves. |
| 2.4 Contributing scenario controlling consumer exposure for: PC34 | | |
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product: 0% - 0.05% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| Frequency and duration of use | Frequency of use | 2 days/week |
| Human factors not influenced by risk management | Exposed skin areas | Two hands 820 cm ² |
| Other given operational conditions affecting consumers exposure | Indoor use. | |
| | Room size | 4 m3 |
| | Ventilation rate per hour | 0,5 |
| Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene) | Consumer Measures | Wear impervious chemical resistant protective gloves. |
| 2.5 Contributing scenario controlling consumer exposure for: PC37 | | |
| Product characteristics | Concentration of the Substance in Mixture/Article | Concentration of substance in product: 0% - 0,1% |
| | Physical Form (at time of use) | Liquid, moderate fugacity |
| | Vapour pressure | 25 hPa |
| Amount used | | 2000 ml |
| Frequency and duration of use | Frequency of use | 1 Times per day |

3. Exposure estimation and reference to its source

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Environment

Qualitative approach used to conclude safe use.

Consumers

EU RAR

| Contributing Scenario | Specific conditions | Exposure routes | Level of Exposure | RCR |
|-----------------------|---------------------------------|---|-----------------------|----------|
| PC34 | Laundry bleaching/pre-treatment | Consumer - inhalative, long-term - systemic | 1,68µg/m ³ | 0,000108 |
| PC35 | Hard surface cleaning | Consumer - inhalative, long-term - systemic | 1,68µg/m ³ | 0,000108 |
| PC34 | Laundry bleaching/pre-treatment | Consumer - dermal, long-term - local | 0,035mg/kg bw/day | < 1 |
| PC35 | Hard surface cleaning | Consumer - dermal, long-term - local | 0,002mg/kg bw/day | < 1 |
| --- | Drinking water, adult | Consumer oral, acute | 0,0003mg/kg bw/day | --- |
| --- | Drinking water, adult | Consumer oral, long-term | 0,003mg/kg bw/day | 0,011 |
| --- | Drinking water, children | Consumer oral, acute | 0,0007mg/kg bw/day | --- |
| --- | Drinking water, children | Consumer oral, long-term | 0,0033mg/kg bw/day | 0,011 |

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES