

EXPOSURE SCENARIO
SODIUM HYDROXIDE
N. Reg. 01-2119457892-27

Exposure Scenario List
Use in professional cleaning
Use in household cleaning

Acronyms:

SU: sector of use

PC: chemical product category

AC: article category

PROC: process category

ERC: environmental release category

OC: operative condition

1. Exposure scenario title: Use in professional cleaning

SU 22 Professional use	
Name of the contributing environmental scenario and corresponding ERC	
ERC 8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC 8b	Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
ERC 8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
ERC9a	Widespread use of functional fluid (indoor)
Name of the contributing scenarios for the workers and the corresponding PROCs	
PROC 1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC 2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC 3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC 4	Chemical production where opportunity for exposure arises
PROC 5	Mixing or blending in batch processes
PROC 8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC 8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC 9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC 10	Roller application or brushing
PROC 11	Non industrial spraying
PROC 13	Treatment of articles by dipping and pouring
PROC 15	Use as laboratory reagent
PROC 19	Manual activities involving hand contact
PROC 23	Open processing and transfer operations at substantially elevated temperature
PROC 24	High (mechanical) energy work-up of substances bound in /on materials and/or articles

2. Conditions of use affecting exposure

2.1 Environment contributing scenario:

Product characteristics: Concentration of substance in mixture	It covers a percentage of the substance in the fine product at 100%.
Operating conditions that affect environmental exposure	Continuous exposure
Technical conditions and technical measures at the process (source) to avoid release In-situ mechanical conditions and measures to reduce or eliminate drains and releases into the ground	Regular pH control is required in case of discharges in open waters., In general discharges should be done in a way that minimizes changes in pH of receiving surface waters., In general most aquatic organisms is able to tolerate pH values in the range 6-9, as also reported in the test description OECD standard on aquatic organisms., Environmental

	risk management measures are aimed at avoiding discharge into the sewer municipal or surface waters, in case such discharges are capable of causing significant changes in pH.
Conditions and Measures Related to External waste treatment for the disposal	Waste should be reused or sent to industrial and neutralized waste water, if necessary.

2.2 Worker contributing scenario

Contributing exposure scenario controlling consumer exposure for PROC 1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 19, 23, 24

Product characteristics	It covers a percentage of the substance in the fine product at 100%.
Physical Form (final use)	Liquid/ solid.
Frequency and duration of use	8 h/day; 200 days/year
Technical conditions and measures to control the dispersion from source towards workers	Professional use: Use pliers with long handles to avoid direct contact and exposure to sketches (do not work over other people's heads) Where possible use pumps and distributors specially designed for the prevention of splashes / spills and exposures.
Organizational measures for avoid / limit spills, the dispersion and exposure	If possible, replace manual processes with automated processes and / or a closed circuit. This would prevent the formation of irritating mists and aerosols e potential splashes. Workers present in risk areas or involved in risky work processes they should be trained to: a) avoid working unprotected respiratory tract b) understand the corrosive properties and, especially, the effects resulting from the inhalation and c) follow the safety instructions given by the employer of work. The employer must ensure that the required PPE is available and that are used in accordance with the relevant instructions.
Conditions and measures concerning protection personal, hygiene assessment and health	In case of formation of dust or aerosols, use PPE to protect the respiratory tract with special filter (P2). Wear chemical resistant gloves. material: butyl rubber, PVC, polychloroprene with latex coating natural, thickness: 0.5 mm, breakthrough time:> 480min material: nitrile rubber, fluorinated rubber, thickness: 0.35-0.4mm, time of permeation:> 480 min If there is a risk of splashing: wear tightly sealed safety goggles, face shield Wear suitable protective clothing, aprons, shields and coveralls Rubber or plastic boots

3. Exposure estimation and reference to its source

3.1 Environment

The effects on the aquatic environment and the risk assessment are related to the effects on the organisms / ecosystems due to the pH modification due to the release of OH-ions, since the metal ion toxicity is considered negligible compared to the (potential) effect due to the pH modification. High solubility in water and low vapor pressure indicate that the substance will be found predominantly in water. In case the risk management measures are implemented there will be no exposure from the active sludge of the treatment plants and the receiving water bodies. The sediments were not considered as not considered relevant to the substance. When released into the aquatic environment, sediment adsorption in sediments is negligible. Given the low vapor pressure, significant emissions into the air of the substance are not foreseeable. When released in the air as a water-based aerosol, the substance will be quickly neutralized by the reaction with carbon dioxide (or with acidic gases). Significant emissions to the ground are not predictable. Application on sludge farmland is not significant, as the substance is not absorbed into the particulate matter in water treatment plants. In case of soil release soil adsorption will be negligible. Depending on soil buffer capacity, OH-ions will be neutralized in interstitial water or a pH increase will occur. The substance does not bioaccumulate.

3.2 – Human exposure

Contributing scenarios	Specific conditions	Route of exposure	Exposure level	RCR
PROC 1 PROC 2 PROC 3 PROC 4 PROC 5 PROC 8a PROC 8b PROC 9 PROC 10 PROC 11 PROC 13 PROC 14 PROC 15 PROC 19 PROC 23 PROC 24	Liquid, no LEV, no RPE	Workers, inhalation, short term, local	0,17 mg/m ³	---
PROC 1 PROC 2	Solid, no LEV, no RPE	Workers, inhalation, short term, local	0,01 mg/m ³	---
PROC 3 PROC 15	Solid, no LEV, no RPE	Workers, inhalation, short term, local	0,1 mg/m ³	---
PROC 4, PROC 5 PROC 11 PROC 14	Solid, no RPE	Workers, inhalation, short term, local	0,2 mg/m ³	---
PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 19	Solid, no LEV, no RPE	Workers, inhalation, short term, local	0,5 mg/m ³	---
PROC23	Solid, with RPE (90%)	Workers, inhalation,	0,4 mg/m ³	---

		short term, local		
PROC24	Solid, with RPE (90%)	Workers, inhalation, short term, local	0,5 mg/m ³	---

This substance is corrosive. During handling of corrosive substances and mixtures contacts with the skin occur only occasionally and repeated exposure to dermal contact is considered not to occur significant.

Exposure to the dermal contact substance has not been quantified. The substance is not considered as available for systemic absorption in the body under normal handling conditions uses. No systemic effects due to inhalation exposure or dermal contact are expected. Measurements made at the workplace and following the risk management measures foreseen for the control

Exposure of workers, inhalation exposure is lower than DNEL.

4. Guidance for Downstream Users on how to evaluate whether he works inside the boundaries set by the ES

The downstream user (DU) operates within the limits set by the ES if the proposed management measures are met of the risk described above or if it can demonstrate that its operating conditions and measures implemented for the risk management are adequate. To this end it is necessary to demonstrate that it limits the inhalation and dermal exposure a level lower than the respective DNEL (since the processes and activities in question are dealt with by the PROC Listed above) as specified below.

If no measured data is available, the downstream user can use a suitable scaling tool such as ECETOC TRA. Important Note: Demonstrating safe use of long-term DNEL exposures is also covered by acute DNEL (according to guidance R.14, it is possible to derive acute exposure levels by multiplying the long-term exposure estimates For a factor of 2).

Additional good practice tips in addition to the REACH Chemical Safety Assessment

Local ventilation is not required but is considered good practice.

1. Exposure scenario title: Uses by consumers

SU 21 Uses by consumers	
Name of the contributing environmental scenario and corresponding ERC	
ERC 8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC 8b	Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
ERC 8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
ERC9a	Widespread use of functional fluid (indoor)
Name of the contributing scenarios for the workers and the corresponding PCs	
PC20	Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
PC35	Washing and cleaning products
PC39	Cosmetics, personal care products

2.1 Environment contributing scenario:

Product characteristics: Concentration of substance in mixture	It covers a percentage of the substance in the fine product at 100%.
Technical conditions and technical measures at the process (source) to avoid release In-situ mechanical conditions and measures to reduce or eliminate drains and releases into the ground	There are no specific risk management measures relating to the environment.
Conditions and Measures Related to External waste treatment for the disposal	This material and its container must be disposed of safely (e.g. by taking it to a waste collection center)., If the container is empty, dispose of it as normal waste., Batteries should be recycled as much as possible (p. ex. taking them to a waste collection center)., The operations of recovery of the substance from the batteries alkaline include emptying of the electrolyte, collection and neutralization.

2.2 Consumer contributing scenario

Contributing exposure scenario controlling consumer exposure for PC 20, 35, 39

Product characteristics	It covers a percentage of the substance in the fine product at 100%.
Physical Form (final use)	Liquid/ solid.
Conditions and precautionary measures relating to the protection of consumer (e.g. advice on behaviour, protection personal and hygiene)	The use of packaging and label is required resistant to the product, in order to avoid their self-damage and the loss of integrity of the label, under normal conditions of use and storage. The lack of quality in the packaging causes the loss of information on dangers and instructions for use. It is advisable to supply only in very viscous mixtures. It is advisable to supply only small quantity. For use in batteries, the use of sealed items with significant durability over time is required.

	<p>It is required that instructions for use and product information are always provided to consumers; this can effectively reduce the risk of misuse.</p> <p>In order to reduce the number of accidents against children and the elderly it is advisable to use these products in their absence.</p> <p>Do not apply the product on the openings / grids of the ventilation systems.</p> <p>Keep out of the reach of children.</p> <p>in case of formation of dust or aerosols use PPE for respiratory protection with filter specific (P2).</p> <p>Wear protective gloves impervious to substance.</p> <p>If there is a risk of splashing: wear tightly sealed safety glasses, shield facial</p>
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3. Exposure estimation and reference to its source

3.1 Human exposure

Contributing scenarios	Specific conditions	Route of exposure	Exposure level	RCR
PC 20 PC 35 PC 39	Rated only for use more critical, (substance contained in a spray for cleaning the oven)	Consumers, inhalation, short term, local	0,3-1,6 mg/m ³	<1

The calculated short term exposure is slightly higher than the DNEL for long term exposures but lower than the occupational exposure limit value (short term). The substance will be quickly neutralized by the reaction with carbon dioxide (or other acids).

4. Guidance for Downstream Users on how to evaluate whether he works inside the boundaries set by the ES

The downstream user (DU) operates within the limits set by the ES if the proposed risk management measures described above are met or if it can demonstrate that its operational conditions and the measures taken to manage risk are adequate. To this end, it must be demonstrated that it limits inhalation and dermal exposure to a level lower than the respective DNEL (as the processes and activities in question are treated by the above listed PCs) as specified below.

If no measured data is available, the downstream user can use a suitable scaling tool such as ConsEXpo software. Important Note: Demonstrating safe use of long exposure DNEL exposure is also covered by acute DNEL (according to guidance R.14, it is possible to derive acute exposure levels by multiplying the long-term exposure estimates For a factor of 2).