

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

SODIUM BISULPHATE SOLID (PH REDUCER)

Version 5.0

Print Date 2020/02/06

Revision date / valid from 2020/02/06

MSDS code: MSBS001

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

1.1. Product identifier

Trade name : SODIUM BISULPHATE SOLID (PH REDUCER)
Substance name : sodium hydrogensulphate
Index-No. : 016-046-00-X
CAS-No. : 7681-38-1
EC-No. : 231-665-7
EU REACH-Reg. No. : 01-2119552465-36-xxxx

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

Use of the Substance/Mixture : 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
Remarks : Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to all product grade

1.3. Details of the supplier of the safety data sheet

Company : Brenntag UK Limited
Alpha House, Lawnswood Business Park
GB LS16 6QY Leeds
Telephone : +44 (0) 113 3879 200
Telefax : +44 (0) 113 3879 280
E-mail address : msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number : Emergency only telephone number (open 24 hours):
+44 (0) 1865 407333 (N.C.E.C. Culham)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008

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Hazard class	Hazard category	Target Organs	Hazard statements
Serious eye damage	Category 1	---	H318

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


Most important adverse effects

Human Health : See section 11 for toxicological information.

Physical and chemical hazards : See section 9/10 for physicochemical information.

Potential environmental effects : See section 12 for environmental information.

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

Hazard symbols : 

Signal word : Danger

Hazard statements : H318 Causes serious eye damage.

Precautionary statements

Prevention : P280 Wear eye protection/ face protection.

Response : P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Hazardous components which must be listed on the label:

- sodium hydrogensulphate

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

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3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
sodium hydrogensulphate			
Index-No. : 016-046-00-X	≤ 100	Eye Dam.1	H318
CAS-No. : 7681-38-1			
EC-No. : 231-665-7			
EU REACH- : 01-2119552465-36-xxxx			
Reg. No.			

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	: Remove to fresh air. If symptoms persist, call a physician.
In case of skin contact	: Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Rinse mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

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	: Treat symptomatically.
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SECTION 5: Firefighting measures

SODIUM BISULPHATE SOLID (PH REDUCER)**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 : High volume water jet

5.2. Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Thermal decomposition can lead to release of irritating gases and vapours.
- Hazardous combustion products : Sulphur oxides

5.3. Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Wear personal protective equipment.
- Further advice : 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. Keep away unprotected persons. Ensure adequate ventilation. Avoid contact with skin and eyes. Do not breathe dust.

6.2. Environmental precautions

- Environmental precautions : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

6.3. Methods and materials for containment and cleaning up

- Methods and materials for containment and cleaning up : Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
- 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**7.1. Precautions for safe handling**

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Advice on safe handling : Keep container tightly closed. Ensure adequate ventilation. Avoid dust formation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust. 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 : Store in original container.

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

Further information on storage conditions : Keep tightly closed in a dry and cool place. Product is hygroscopic. Keep in a well-ventilated place.

Advice on common storage : Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Occupational Exposure Limit Values

(Additional) Information : Contains no substances with occupational exposure limit values.
Contains no substances with occupational exposure limit values.

Component: sodium hydrogensulphate CAS-No. 7681-38-1

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

No DNEL value was derived. :

Predicted No Effect Concentration (PNEC)

Fresh water : 11.09 mg/l

Marine water : 1.109 mg/l

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Intermittent releases	:	17.66 mg/l
Sewage treatment plant (STP)	:	800 mg/l
Fresh water sediment	:	40.2 mg/kg d.w.
Marine sediment	:	4.02 mg/kg d.w.
Soil	:	1.54 mg/kg d.w.

8.2. Exposure controls**Appropriate engineering controls**

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment*Respiratory protection*

Advice : Respirator must be worn if exposed to dust.
Respiratory protection complying with EN 141.
Particle filter:P2

Hand protection

Advice : Protective gloves complying with EN 374.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Protective gloves should be replaced at first signs of wear.
The following information applies to aqueous, saturated solutions.

Material : Natural Rubber
Break through time : ≥ 8 h
Glove thickness : 0.5 mm

Material : polychloroprene
Break through time : ≥ 8 h
Glove thickness : 0.5 mm

Material : Nitrile rubber
Break through time : ≥ 8 h
Glove thickness : 0.35 mm

Material : butyl-rubber
Break through time : ≥ 8 h
Glove thickness : 0.5 mm

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Material : Fluorinated rubber
Break through time : ≥ 8 h
Glove thickness : 0.4 mm

Material : Polyvinylchloride
Break through time : ≥ 8 h
Glove thickness : 0.5 mm

Eye protection

Advice : Safety goggles

Skin and body protection

Advice : Wear personal protective equipment.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

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

Form : solid
Colour : white
Odour : odourless
Odour Threshold : no data available
pH : no data available
Melting point/range : 315 °C
Boiling point : no data available
Flash point : Not applicable
Evaporation rate : no data available
Flammability (solid, gas) : does not ignite
Upper explosion limit : Not applicable
Lower explosion limit : Not applicable
Vapour pressure : Not applicable

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Relative vapour density	:	no data available
Relative density	:	1.4 - 1.5
Water solubility	:	ca. 1080 g/l (25 °C)
Partition coefficient: n-octanol/water	:	This product is inorganic substance.
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	460 °C
Viscosity, dynamic	:	Not applicable
Explosivity	:	Product is not explosive.
Oxidizing properties	:	not oxidising

9.2. Other information

Molecular weight	:	120.06 g/mol
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SECTION 10: Stability and reactivity**10.1. Reactivity**

Advice	:	No decomposition if stored and applied as directed.
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10.2. Chemical stability

Advice	:	Stable under recommended storage conditions.
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10.3. Possibility of hazardous reactions

Hazardous reactions	:	Forms hydrogen in aqueous solution with metals.
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10.4. Conditions to avoid

Conditions to avoid	:	Excessive heat, humid air and water. Product is hygroscopic.
Thermal decomposition	:	460 °C

10.5. Incompatible materials

Materials to avoid	:	Strong bases, Strong oxidizing agents, Water
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10.6. Hazardous decomposition products

Hazardous decomposition products	:	Hazardous decomposition products formed under heating: sulphur oxides (SO _x)
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SECTION 11: Toxicological information

SODIUM BISULPHATE SOLID (PH REDUCER)**11.1. Information on toxicological effects**

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Acute toxicity**Oral**

LD50 : 2140 mg/kg (Rat) (No guideline followed)Read-across (Analogy)

Inhalation

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

Dermal

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

Irritation**Skin**

Result : No skin irritation (Rabbit) (OECD Test Guideline 404)

Eyes

Result : Causes serious eye damage. (Rabbit) (OECD - Guideline 405)

Sensitisation

Result : not sensitizing (Maximisation Test; Dermal; Guinea pig; Test substance: Sodium sulphate) (OECD Test Guideline 406)Read-across (Analogy)

CMR effects**CMR Properties**

Carcinogenicity : Based on available data, the classification criteria are not met.
 Mutagenicity : In vitro tests did not show mutagenic effects
 Read-across (Analogy)
 Reproductive toxicity : Animal testing did not show any effects on fertility.
 Read-across (Analogy)

Genotoxicity in vitro

Result : negative (Bacterial Reverse Mutation Test; Salmonella typhimurium; Test substance: Sodium sulphate; with and without metabolic activation) Read-across (Analogy)

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negative (In vitro gene mutation study in mammalian cells; Mouse Lymphoma Cells; Test substance: Sodium sulphate; with and without metabolic activation) (OECD Test Guideline 476)Read-across (Analogy)

negative (Chromosome aberration test in vitro; CHO (Chinese Hamster Ovary) cells; Test substance: Sodium sulphate) (OECD Test Guideline 473)Read-across (Analogy)

Teratogenicity

NOEL Develop. : 1,000 mg/kg bw/day
(Rat)(OECD Test Guideline 414)Read-across (Analogy)

Reproductive toxicity

NOEL Parent : 1,000 mg/kg bw/day
NOEL Fertility : 1,000 mg/kg bw/day
(Reproduction/Developmental Toxicity Screening Test; Rat, wistar, male and female)(Oral)(OECD Guideline 421)Read-across (Analogy)

Specific Target Organ Toxicity**Single exposure**

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

Repeated exposure

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

Other toxic properties**Aspiration hazard**

Not applicable,

Further information

Other relevant toxicity information : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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

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Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Acute toxicity**Fish**

LC50 : 7,960 mg/l (Pimephales promelas (fathead minnow); 96 h; Test substance: Sodium sulphate) (static test; EPA 600/4-90/027)Read-across (Analogy)

Toxicity to daphnia and other aquatic invertebrates

LC50 : 1,766 mg/l (Daphnia magna (Water flea); 48 h; Test substance: Sodium sulphate) (US-EPA)Read-across (Analogy)

algae

: no data available

Bacteria

NOEC : ca. 26 mg/l (activated sludge; 36 d; Test substance: Sodium sulphate) Read-across (Analogy)

Chronic toxicity**Aquatic invertebrates**

NOEC 1109 mg/l (Ceriodaphnia dubia (water flea); Test substance: Sodium sulphate) (ASTM E 1295-01)Read-across (Analogy)

12.2. Persistence and degradability

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Persistence and degradability**Persistence**

Result : no data available

Biodegradability

Result : The methods for determining the biological degradability are not applicable to inorganic substances.

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12.3. Bioaccumulative potential

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Bioaccumulation

Result : Bioaccumulation is unlikely.

12.4. Mobility in soil

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Mobility

Water : The product is water soluble.

Air : not volatile

12.5. Results of PBT and vPvB assessment

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Results of PBT and vPvB assessment

Result : The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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Additional ecological information

Result : Use neutralizing agent.
Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates

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the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

Not dangerous goods for ADR, RID, IMDG and IATA.

14.1. UN number

|| Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packaging group

Not applicable.

14.5. Environmental hazards

Not applicable.

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**

Component:	sodium hydrogensulphate	CAS-No. 7681-38-1
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EU. Regulation EU No. : ; The substance/mixture does not fall under this legislation.
649/2012 concerning the
export and import of
dangerous chemicals

EU. REACH, Annex XVII, : ; The substance/mixture does not fall under this legislation.
Marketing and Use

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Restrictions (Regulation
1907/2006/EC)

EU. Regulation No : EC Number: , 231-665-7; Listed
1451/2007 [Biocides],
Annex I, OJ (L 325)

EU. Directive : ; The substance/mixture does not fall under this legislation.
2012/18/EU (SEVESO
III) Annex I

Notification status sodium hydrogensulphate:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
INV (CN)	YES	
ENCS (JP)	YES	(1)-501
ISHL (JP)	YES	1-(3)-227
ISHL (JP)	YES	(1)-501
EINECS	YES	231-665-7
KECI (KR)	YES	KE-31481
TSCA	YES	

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

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

H318 Causes serious eye damage.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level

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EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	<p>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.</p> <p>The information contained in this Safety Data Sheet relates only to the specific material designated and may</p>

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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.

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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	Use in cleaning agents	21	NA	35	NA	8a	NA	ES6185
2	Use as pH-regulator	21	NA	20, 37	NA	8a	NA	ES8889
3	Industrial use	3	2a, 2b, 4, 5, 6b, 7, 8, 9, 10, 11, 13, 15, 16, 17, 19, 20, 23	14, 15, 19, 20, 21, 25, 35, 36, 37	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 17, 19, 21, 24	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b	NA	ES8877
4	Professional use	22	NA	14, 15, 20, 35, 37	2, 3, 4, 5, 8a, 8b, 9, 10, 11, 12, 13, 14, 15, 17, 19, 21, 24	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b, 10a, 10b, 11a, 11b	NA	ES6183

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1. Short title of Exposure Scenario 1: Use in cleaning agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC35: Washing and cleaning products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Other given operational conditions affecting environmental exposure	Indoor or outdoor use	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC35: Acid surface cleaner

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 6%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	12 g/l(Typ PC35)
	Amount used per event	22 g/l(Max PC35)
Frequency and duration of use	Exposure duration per day	20 min(Max PC35)
	Frequency of use	7 Times per week(Max PC35)
Human factors not influenced by risk management	Body weight	60 kg
	Exposed skin area	Two hands 857.5 cm ²
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water Wash hands thoroughly after handling. Safety goggles

2.3 Contributing scenario controlling consumer exposure for: PC35: Acid surface cleaner

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	Solid, low dustiness
Amount used	Amount used per event	8 g/l(Max PC35)
Frequency and duration of use	Exposure duration per day	20 min(Max PC35)
	Frequency of use	7 Times per week(Max PC35)
Human factors not influenced by risk management	Body weight	60 kg
	Exposed skin area	Two hands 857.5 cm ²
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water Wash hands thoroughly after handling. Safety goggles

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2.4 Contributing scenario controlling consumer exposure for: PC35: Toilet cleaner

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 80%
	Physical Form (at time of use)	Solid, low dustiness
Amount used	Amount used per event	20 g(Typ PC35)
	Amount used per event	30 g(Max PC35)
Frequency and duration of use	Exposure duration per day	< 1 min
	Frequency of use	2 Times per week(Max PC35)
Human factors not influenced by risk management	Body weight	60 kg
	Exposed skin surface	
	only splashes	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water Wash hands thoroughly after handling. Safety goggles

3. Exposure estimation and reference to its source

Environment

The pH impact due to this use is expected to be negligible. The influent of a municipal wastewater treatment plant is often neutralized anyway. The substance may even be used beneficially for pH control of basic wastewater streams that are treated in biological WWTPs.

Consumers

Qualitative approach used to conclude safe use. Dermal exposure is not considered to be relevant. No significant inhalative exposure.

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

The DU works inside the boundaries set by the exposure scenario if the substance is either marked as a liquid preparation or in case of a solid preparation is used as manufactured and not further processed to get smaller particles

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1. Short title of Exposure Scenario 2: Use as pH-regulator

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC37: Water treatment chemicals
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b

Other given operational conditions affecting environmental exposure	Indoor or outdoor use	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC20, PC37

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	Solid, low dustiness, granules
Amount used	Amount used per event	10 g/m ³ (Pouring of granules PC20, PC37)
	Exposure duration per day	1.33 min(Pouring of granules PC20, PC37)
Frequency and duration of use	Frequency of use	1 Times per week(Pouring of granules PC20, PC37)
	Exposed skin area	Palms of both hands (480 cm ²) 60 kg(Pouring of granules, adult PC20, PC37)
Human factors not influenced by risk management	Body weight	60 kg(Pouring of granules, adult PC20, PC37)
	Consumer Measures	Avoid contact with eyes. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water Wash hands thoroughly after handling. Safety goggles

2.3 Contributing scenario controlling consumer exposure for: PC20, PC37

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	10 %(Dropwise application of solution PC20, PC37)
	Post-application ingestion	0.05 l/h
Frequency and duration of use	Exposure duration per day	> 1 min
	Frequency of use	1 tasks/month
	Frequency of use	365 days/year(Post-application ingestion PC20, PC37)
Human factors not influenced by risk management	Exposed skin area	Palms of both hands 60 kg(Dropwise application of solution PC20, PC37)

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	Body weight	60 kg(Dropwise application of solution PC20, PC37)
	Body weight	22 kg(Post-application ingestion, child PC20, PC37)
	Body weight	60 kg(Post-application ingestion, adult PC20, PC37)
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water Wash hands thoroughly after handling. Safety goggles

3. Exposure estimation and reference to its source

Environment

The pH impact due to this use is expected to be negligible. The influent of a municipal wastewater treatment plant is often neutralized anyway. The substance may even be used beneficially for pH control of basic wastewater streams that are treated in biological WWTPs.

Consumers

Qualitative approach used to conclude safe use. Dermal exposure is not considered to be relevant. Inhalative exposure is regarded to be not relevant.

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

The DU works inside the boundaries set by the exposure scenario if the substance is either marked as a liquid preparation or in case of a solid preparation is used as manufactured and not further processed to get smaller particles

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1. Short title of Exposure Scenario 3: Industrial use

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	<p>SU2a: Mining, (without offshore industries) SU2b: Offshore industries SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU7: Printing and reproduction of recorded media SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU15: Manufacture of fabricated metal products, except machinery and equipment SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19: Building and construction work SU20: Health services SU23: Electricity, steam, gas water supply and sewage treatment</p>
Chemical product category	<p>PC14: Metal surface treatment products, including galvanic and electroplating products PC15: Non-metal-surface treatment products PC19: Intermediate PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21: Laboratory chemicals PC25: Metal working fluids PC35: Washing and cleaning products PC36: Water softeners PC37: Water treatment chemicals</p>
Process categories	<p>PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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) PROC7: Industrial spraying 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) PROC10: Roller application or brushing PROC12: Use of blowing agents in manufacture of foam PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process</p>

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	<p>PROC19: Hand-mixing with intimate contact and only PPE available</p> <p>PROC21: Low energy manipulation of substances bound in materials and/ or articles</p> <p>PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles</p>
Environmental Release Categories	<p>ERC1: Manufacture of substances</p> <p>ERC2: Formulation of preparations</p> <p>ERC3: Formulation in materials</p> <p>ERC4: Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC5: Industrial use resulting in inclusion into or onto a matrix</p> <p>ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)</p> <p>ERC6b: Industrial use of reactive processing aids</p> <p>ERC6c: Industrial use of monomers for manufacture of thermoplastics</p> <p>ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers</p> <p>ERC7: Industrial use of substances in closed systems</p> <p>ERC12a: Industrial processing of articles with abrasive techniques (low release)</p> <p>ERC12b: Industrial processing of articles with abrasive techniques (high release)</p>
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ERC12a, ERC12b

No exposure assessment presented for the environment

Amount used	The amount of substance used is not considered relevant for these operations.	
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
Other given operational conditions affecting environmental exposure	Continuous use/release	
Technical conditions and measures at process level 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	Water	Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes. Regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised. In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms. Neutralization is normally necessary before waste water is discharged into water treatment plants.
Conditions and measures related to 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	Disposal methods	Waste should be reused or discharged to the industrial wastewater and further neutralized if needed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC17, PROC19, PROC21, PROC24

Product characteristics	Concentration of the Substance in	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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	Mixture/Article	
	Physical Form (at time of use)	solid, granules
Amount used	The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario	
Frequency and duration of use	Frequency of use	< 60 (only PROC7)
Human factors not influenced by risk management	Breathing volume	10 m3
Other operational conditions affecting workers exposure	Closed system(PROC1, PROC2, PROC3, PROC7)	
Technical conditions and measures to control dispersion from source towards the worker	Provide local exhaust ventilation (LEV). (Efficiency: 78 %) Ensure that the worker is in a separated (control) room with independent air supply Ensure that a spraying booth is used.(PROC7)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures.	
Conditions and measures related to personal protection, hygiene and health evaluation	If no adequate ventilation is available: Wear respiratory protection FFP2 mask Filtering Half-face mask (DIN EN 149) Respirator with a particle filter (EN 143) Protective gloves complying with EN 374. Wear protective clothing. Use protective shoes or boots with rough rubber sole. Safety goggles Do not inhale dust / smoke / mist	

3. Exposure estimation and reference to its source

Environment

EUSES. No exposure assessment presented for the environment.

Workers

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
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The MEASE Tool has been used to estimate workplace exposure. Dermal exposure is not considered to be relevant. Inhalative exposure is regarded to be not relevant.

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

The DU works inside the boundaries set by the exposure scenario if the substance is either marked as a liquid preparation or in case of a solid preparation is used as manufactured and not further processed to get smaller particles

Health
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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: <http://www.ebrc.de/mease.html>
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

Additional good practice advice beyond the REACH Chemical Safety Assessment

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Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 4: Professional use

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC14: Metal surface treatment products, including galvanic and electroplating products PC15: Non-metal-surface treatment products PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC35: Washing and cleaning products PC37: Water treatment chemicals
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC12: Use of blowing agents in manufacture of foam PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/ or articles PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles
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 ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing) ERC11a: Wide dispersive indoor use of long-life articles and materials with low release ERC11b: Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b, ERC10a, ERC10b, ERC11a, ERC11b

Amount used	The amount of substance used is not considered relevant for these operations.	
Environment factors not influenced by risk management	Flow rate of receiving	18,000 m3/d
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	surface water	
Other given operational conditions affecting environmental exposure	Continuous use/release	
Technical conditions and measures at process level 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	Water	Any wastewater should be emitted to the STP
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	On-site waste water treatment
	Flow rate of sewage treatment plant effluent	2,000 m3/d
	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC17, PROC19, PROC21, PROC24		
Product characteristics	Physical Form (at time of use)	powder, granules
Amount used	The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario	
Other operational conditions affecting workers exposure	Closed system(PROC2, PROC3, PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Do not blow dust off with compressed air Provide local exhaust ventilation (LEV). (Efficiency: 78 %)	
	Spraying	Complete segregation(PROC11)
Organisational measures to prevent /limit releases, dispersion and exposure	Spraying	Ensure segregation of worker from the source.(PROC11)
Conditions and measures related to personal protection, hygiene and health evaluation	If no adequate ventilation is available: Wear respiratory protection Wear air purifying mask APF20 Filtering Half-face mask (DIN EN 149) FFP2 mask Half mask with a particle filter P2 (EN 143) Protective gloves complying with EN 374. Wear safety goggles. Safety shoes Wear protective clothing.	
3. Exposure estimation and reference to its source		
Environment		
EUSES.		
Workers		
The MEASE Tool has been used to estimate workplace exposure. Dermal exposure is not considered to be relevant.		
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the		
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SODIUM BISULPHATE SOLID (PH REDUCER)**Exposure Scenario**

The DU works inside the boundaries set by the exposure scenario if the substance is either marked as a liquid preparation or in case of a solid preparation is used as manufactured and not further processed to get smaller particles

Health

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.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

For further information on the assessment method, see: <http://www.ebrc.de/mease.html>

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