

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 27-Dec-2022

Revision date 24-Oct-2025

Revision Number 9

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

1.1. Product identifier

Product Code(s)	2862
Safety data sheet number	2862
Product Name	SODIUM METABISULPHITE
Index No	016-063-00-2
EC Number	231-673-0
CAS No	7681-57-4
Synonyms	SODIUM METABISULPHITE MIN 98%, SODIUM METABISULPHITE FG ADA, SODIUM METABISULPHITE 96% ADA, SODIUM METABISULPHITE ANH, SODIUM METABISULPHITE DNX, SODIUM METABISULPHITE ALIM E223, SODIUM METABISULPHITE HP, SODIUM METABISULPHITE FG E223, SODIUM METABISULPHITE TLG, SODIUM METABISULPHITE FG ESO, SODIUM METABISULPHITE ZW
Pure substance/mixture	Substance
Contains SODIUM METABISULPHITE	

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

Recommended use	Industrial use Professional use Food additive Reducing agents Whitening agent. Laboratory chemicals Preservative Water Treatment Chemical Pharmaceutical Leather and textiles Pulp and paper industry Photographic chemical For further information, see attached Exposure Scenario
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1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address SDS.EMEA@univarsolutions.com
 Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Acute toxicity - Oral	Category 4 - (H302)
Serious eye damage/eye irritation	Category 1 - (H318)

2.2. Label elements

Contains SODIUM METABISULPHITE



Signal word
 Danger

Hazard statements

H302 - Harmful if swallowed
 H318 - Causes serious eye damage

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling
 P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 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
 P330 - Rinse mouth
 P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information

This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI	Specific concentration	M-Factor	M-Factor (long-term)
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				2020/1567 as amended)	limit (SCL)		
SODIUM METABISULPHITE 7681-57-4	90 - 100%	231-673-0	-	Acute Tox. 4 (H302) Eye Dam. 1 (H318) (EUH031)	-	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)

SECTION 4: First aid measures**4.1. Description of first aid measures**

Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Get medical attention if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately if symptoms occur.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if symptoms occur.
Ingestion	Rinse mouth thoroughly with water. Do NOT induce vomiting. Do not give anything to eat or drink. Get medical attention immediately if symptoms occur.

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

Eyes	Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated. Causes eye burns.
Ingestion	Harmful if swallowed

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

Note to doctors	In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible).
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SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable Extinguishing Media	Dry chemical, CO2, alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	When heated and in case of fire, toxic vapours/gases may be formed. The product is not flammable.
Hazardous combustion products	Carbon oxides. Oxides of sulphur.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep unnecessary and unprotected personnel from entering.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.
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6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Avoid generation of dust. Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Pick up and transfer to properly labelled containers. After cleaning, flush away traces with water.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Do not breathe dust.
General hygiene considerations	Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke when using the product. Use personal protection recommended in Section 8. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Keep away from food, drink and animal feedingstuffs. Store away from the following materials. Oxidising agent. Acids. Keep in properly labelled containers.
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7.3. Specific end use(s)

Specific use(s)	See section 1 for more information.
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Risk Management Methods (RMM)	The information required is contained in this Safety Data Sheet.
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SECTION 8: Exposure controls/personal protection

8.1. Control parameters**Exposure Limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical name	United Kingdom
SODIUM METABISULPHITE 7681-57-4	TWA: 5 mg/m ³ STEL: 15 mg/m ³

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
SODIUM METABISULPHITE 7681-57-4			225 mg/m ³ [4] [6]

[4] Systemic health effects.
[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
SODIUM METABISULPHITE 7681-57-4	8.6 mg/kg [5] [6]		66 mg/m ³ [5] [6]

[5] Local health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
SODIUM METABISULPHITE 7681-57-4	1 mg/l		0.1 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
SODIUM METABISULPHITE 7681-57-4			75.4 mg/L		

8.2. Exposure controls**Engineering controls**

No information available.

Personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection

Wear suitable gloves. Gloves must conform to standard EN 374.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
	Wear protective nitrile rubber gloves	0.4 mm	> 480 minutes
	Polyvinyl chloride (PVC)	>= 0.7 mm	> 480 minutes

	Wear protective Viton™ gloves	≥ 0.4 mm	> 480 minutes
	Polychloroprene.	≥ 0.5 mm	> 480 minutes

Skin and body protection	Wear appropriate clothing to prevent reasonably probable skin contact.
Respiratory protection	Use appropriate respiratory protection.
Recommended filter type:	Half-face mask with combined filter. EN 14387. Combined filter: E/P1-P2. Filter mask FFP2/FFP3 for solid particles. EN 149.
General hygiene considerations	Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke when using the product. Use personal protection recommended in Section 8. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Solid, Dusty powder
Colour	White/off-white To yellow
Odour	Characteristic. To. Pungent.
Odour threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	> 120 °C	
Initial boiling point and boiling range		Not applicable. Study technically not feasible.
Flammability		The product is not flammable.
Flammability Limit in Air		Not relevant.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point		Not applicable. Scientifically unjustified.
Autoignition temperature		Not applicable.
Decomposition temperature	150 °C	
pH	3.5 - 6.5	solution (5 %).
pH (as aqueous solution)		No information available.
Kinematic viscosity		Not applicable. solid.
Dynamic viscosity		Not applicable. solid.
Water solubility	Soluble in water 470 g/l @ 20 °C	
Solubility(ies)		Not applicable.
Partition coefficient	-3.70	
Vapour pressure		Not applicable.
Relative density	1.2 - 1.3	
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		Not applicable.
Particle characteristics		No information available.
Particle Size	200 - 350 µm	
Particle Size Distribution	No information available	
Explosive properties	Not considered to be explosive.	
Oxidising properties	Does not meet the criteria for classification as oxidising	

9.2. Other information

VOC content	Not applicable
Evaporation rate	Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Contact with acids liberates toxic gas.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Protect from direct sunlight. Heat. Humidity.

10.5. Incompatible materials

Incompatible materials Oxidising agents. Acids.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon oxides. Oxides of sulphur.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Information on likely routes of exposure****Product Information**

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated. Causes eye burns.

Skin contact Non-irritating during normal use.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics**Symptoms****Acute toxicity****Numerical measures of toxicity**

No information available

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM METABISULPHITE	> 1540 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 5.5 mg/l (Rat)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data the classification criteria are not met. Non-irritating during normal use.

SODIUM METABISULPHITE (7681-57-4)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion		Dermal			non-irritant

Serious eye damage/eye irritation Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated. Causes eye burns.

SODIUM METABISULPHITE (7681-57-4)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 405: Acute Eye Irritation/Corrosion	Rabbit	eye			Corrosive Causes serious eye damage May cause permanent damage if eye is not immediately irrigated. Causes eye burns

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

SODIUM METABISULPHITE (7681-57-4)

Method	Species	Exposure route	Results
OECD Test No. 429: Skin Sensitization		Dermal	Negative

Germ cell mutagenicity Based on available data the classification criteria are not met.

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

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

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity The environmental impact of this product has not been fully investigated.

SODIUM METABISULPHITE (7681-57-4)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Fish <i>Salmo gairdneri</i>	LC50	149.6 mg/L	96 hours	mg SO3 2-/L
Acute toxicity	<i>Daphnia magna</i>	EC50	74.9 mg/L	48 hours	mg SO3 2-/L
Acute toxicity	Algae <i>Scenedesmus subspicatus</i>	EC50	36.8 mg/L	72 hours	mg SO3 2-/L
Chronic toxicity	Fish <i>Brachydanio</i>	EC10	50 mg/L		mg SO3 2-/L

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Chronic toxicity	Algae Scenedesmus subspicatus	EC10	28 mg/L		mg SO3 2-/L
Chronic toxicity	Daphnia magna	NOEC	8.41 mg/L		mg SO3 2-/L

12.2. Persistence and degradability

Persistence and degradability The methods for determining biodegradability are not applicable to inorganic substances.

SODIUM METABISULPHITE (7681-57-4)

Method	Exposure time	Value	Results
			The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Chemical name	Partition coefficient
SODIUM METABISULPHITE	-3.7

12.4. Mobility in soil

Mobility in soil Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
SODIUM METABISULPHITE	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information**IATA**

- 14.1 UN number or ID number Not regulated
 14.2 UN proper shipping name Not regulated
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental hazards No
 14.6 Special precautions for user
 Special Provisions None

IMDG

- 14.1 UN number or ID number Not regulated

14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

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

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
SODIUM METABISULPHITE - 7681-57-4	75	-

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Not applicable

International Inventories**TSCA**

Contact supplier for inventory compliance status

DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

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

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note **SDS sections updated 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16**

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)

Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By Lisa Bland

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**This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use (Slurry or Pastes)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8b - Wide dispersive indoor use of reactive substances 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
Process category(ies)	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 (multi-stage 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 blow agents in manufacture of foam PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available
Product category(ies)	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC3 - Air care products PC4 - Anti-freeze and de-icing products PC7 - Base metals and alloys PC8 - Biocidal Products (e.g.

Sector(s) of use

disinfectants, pest control) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC28 - Perfumes, fragrances PC30 - Photo-chemicals PC31 - Polishes and wax blends PC32 - Polymer preparations and compounds PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC39 - Cosmetics, personal care products PC40 - Extraction agents
SU1 - Agriculture, forestry, fishery SU2a - Mining (without offshore industries) SU2b - Offshore industries SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU5 - Manufacture of textiles, leather, fur SU6a - Manufacture of wood and wood products 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 SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work SU20 - Health services SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8b - Wide dispersive indoor use of reactive substances 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Avoid inhalation of the product Clean equipment and the work area every day

exposure	
Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment

health evaluation	
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC12 - Use of blow agents in manufacture of foam
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

exposure	
Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances
- ERC2 - Formulation of preparations (mixtures)
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8b - Wide dispersive indoor use of reactive substances 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

**Predicted No Effect Concentration
(PNEC)**

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method	Used EUSES model
Msafe	31852 kg/d
Remarks	Calculated as Sulphite ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method	MEASE		
Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	4.4 mg/m ³	0.44
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC9 - Transfer of substance or preparation into small containers	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001

(dedicated filling line, including weighing)			
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC12 - Use of blow agents in manufacture of foam	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see.
<http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use (Solid, low dustiness)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

	PROC21 - Low energy manipulation of substances bound in materials and/or articles PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies)	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC3 - Air care products PC4 - Anti-freeze and de-icing products PC7 - Base metals and alloys PC8 - Biocidal Products (e.g. disinfectants, pest control) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC28 - Perfumes, fragrances PC30 - Photo-chemicals PC31 - Polishes and wax blends PC32 - Polymer preparations and compounds PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC39 - Cosmetics, personal care products PC40 - Extraction agents
Sector(s) of use	SU1 - Agriculture, forestry, fishery SU2a - Mining (without offshore industries) SU2b - Offshore industries SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU5 - Manufacture of textiles, leather, fur SU6a - Manufacture of wood and wood products 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 SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work SU20 - Health services SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

- Environmental release category(ies)** - ERC1 - Manufacture of substances
- ERC2 - Formulation of preparations (mixtures)
 - ERC3 - Formulation in materials
 - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
 - ERC5 - Industrial use resulting in inclusion into or onto a matrix
 - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
 - ERC6b - Industrial use of reactive processing aids
 - ERC6c - Industrial use of monomers for manufacture of thermoplastics
 - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
 - ERC7 - Industrial use of substances in closed systems
 - 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment

Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

exposure	
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Covers concentrations up to	100%

Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

Predicted No Effect Concentration

(PNEC)

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method

Used EUSES model

Msafe

31852 kg/d

Remarks

Calculated as Sulphite

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method

MEASE

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC2 - Use in closed, continuous	Worker - inhalative, long-term	0.01 mg/m ³	0.001

process with occasional controlled exposure	- systemic		
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC21 - Low energy manipulation of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	7 mg/m ³	0.7
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	2 mg/m ³	0.2
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations	Worker - inhalative, long-term	2 mg/m ³	0.2

with metals	- systemic		
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	1.5 mg/m ³	0.15

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see.

<http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use (Solid, medium dustiness)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

Product category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
Sector(s) of use	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC3 - Air care products PC4 - Anti-freeze and de-icing products PC7 - Base metals and alloys PC8 - Biocidal Products (e.g. disinfectants, pest control) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC28 - Perfumes, fragrances PC30 - Photo-chemicals PC31 - Polishes and wax blends PC32 - Polymer preparations and compounds PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC39 - Cosmetics, personal care products PC40 - Extraction agents
	SU1 - Agriculture, forestry, fishery SU2a - Mining (without offshore industries) SU2b - Offshore industries SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU5 - Manufacture of textiles, leather, fur SU6a - Manufacture of wood and wood products 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 SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work SU20 - Health services SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Avoid inhalation of the product

/limit releases, dispersion and exposure	Clean equipment and the work area every day
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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment

Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
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Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Avoid inhalation of the product

/limit releases, dispersion and exposure	Clean equipment and the work area every day
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Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to	Wear suitable working clothes Use suitable eye protection and gloves

personal protection, hygiene and health evaluation	See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment

health evaluation	
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

**Predicted No Effect Concentration
(PNEC)**

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method Used EUSES model

Msafe 31852 kg/d

Remarks Calculated as Sulphite

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method MEASE

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC3 - Use in closed batch process	Worker - inhalative, long-term	1 mg/m ³	0.1

(synthesis or formulation)	- systemic		
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	4.4 mg/m ³	0.44
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	4.4 mg/m ³	0.44
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	4.4 mg/m ³	0.44
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	7 mg/m ³	0.7
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	2 mg/m ³	0.2
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations with metals	Worker - inhalative, long-term - systemic	2 mg/m ³	0.2
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use (Solid, high dustiness)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
Product category(ies)	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC3 - Air care products PC4 - Anti-freeze and de-icing products PC7 - Base metals and alloys PC8 - Biocidal Products (e.g. disinfectants, pest control) PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC28 - Perfumes, fragrances PC30 - Photo-chemicals PC31 - Polishes and wax blends PC32 - Polymer preparations and compounds PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC39 - Cosmetics, personal care products PC40 - Extraction agents
Sector(s) of use	SU1 - Agriculture, forestry, fishery SU2a - Mining (without offshore industries) SU2b - Offshore industries SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU5 - Manufacture of textiles, leather, fur SU6a - Manufacture of wood and wood products 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 SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU18 - Manufacture of furniture SU19 - Building and construction work SU20 - Health services SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Avoid inhalation of the product

/limit releases, dispersion and exposure	Clean equipment and the work area every day
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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: FFP1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: FFP1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%

Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: FFP1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: FFP1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: FFP1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Covers concentrations up to	100%

Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	or Liquid Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

Predicted No Effect Concentration

(PNEC)

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method	Used EUSES model
Msafe	31852 kg/d
Remarks	Calculated as Sulphite ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation	10 mg/m ³
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Calculation method	MEASE		
Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	2.75 mg/m ³	0.275
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	4.4 mg/m ³	0.44
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	2.2 mg/m ³	0.22
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC14 - Production of preparations or articles by tableting, compression,	Worker - inhalative, long-term - systemic	2.2 mg/m ³	0.22

extrusion, pelettising			
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	2.2 mg/m ³	0.22
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	2.75 mg/m ³	0.275
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	2.75mg/m ³	0.275
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	6.25 mg/m ³	0.625
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	7 mg/m ³	0.7
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	2 mg/m ³	0.2
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations with metals	Worker - inhalative, long-term - systemic	2 mg/m ³	0.2
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	2.2 mg/m ³	0.22

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name SODIUM METABISULPHITE
Pure substance/mixture Substance
REACH registration number 01-2119531326-45-XXXX
CAS No 7681-57-4
EC No (EU Index No) 231-673-0
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Industrial use Manufacture of wood and wood products
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6b - Industrial use of reactive processing aids
Process category(ies) 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 (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 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
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU6a - Manufacture of wood and wood products SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
 - ERC6b - Industrial use of reactive processing aids

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 78%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

**Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration
(PNEC)**

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method	Used EUSES model
Msafe	31852 kg/d
Remarks	Calculated as Sulphite ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 10 mg/m³

Inhalation 10 mg/m³

Calculation method MEASE

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC5 - Mixing or blending in batch	Worker - inhalative, long-term	5.5 mg/m ³	0.55

processes for formulation of preparations and articles (multi-stage and/or significant contact)	- systemic		
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC21 - Low energy manipulation of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Used EUSES model. MEASE. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Slurry or Pastes)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage 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 blow agents in manufacture of foam PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

Product category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC7 - Base metals and alloys PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC30 - Photo-chemicals PC31 - Polishes and wax blends PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC40 - Extraction agents SU22 - Professional uses
Sector(s) of use	

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
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Water	Required removal efficiency (wastewater) 99%
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Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to	Wear suitable working clothes Use suitable eye protection and gloves

personal protection, hygiene and health evaluation	See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC12 - Use of blow agents in manufacture of foam
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment

Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
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Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

exposure	
Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Covers concentrations up to	100%
Physical form of product	Slurry or Paste
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

**Predicted No Effect Concentration
(PNEC)**

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method

Used EUSES model

Msafe

31852 kg/d

Remarks

Calculated as Sulphite

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation

10 mg/m³

Calculation method

MEASE

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC12 - Use of blow agents in manufacture of foam	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005

PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.05 mg/m ³	0.005
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, long-term - systemic	0.001 mg/m ³	<0.001

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Solid, low dustiness)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

Product category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC7 - Base metals and alloys PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC30 - Photo-chemicals PC31 - Polishes and wax blends PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC40 - Extraction agents SU22 - Professional uses
Sector(s) of use	

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
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Removal efficiency (total)	99%
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Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%

**ES01568 - SODIUM METABISULFITE (231-673-0) -
Professional use of low dusty solids/powders of
sodium metabisulfite as such or in preparations**

Revision date 24-Oct-2025

Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, low dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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**

**Predicted No Effect Concentration
(PNEC)**

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method Used EUSES model
Msafe 31852 kg/d
Remarks Calculated as Sulphite
 ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method	MEASE		
Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.01 mg/m ³	0.001
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	1mg/m ³	0.1

PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.1 mg/m ³	0.01
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	2.5 mg/m ³	0.25
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC21 - Low energy manipulation of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	2.5 mg/m ³	0.25
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations with metals	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	3 mg/m ³	0.3

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see.
<http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Solid, medium dustiness)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

Product category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC7 - Base metals and alloys PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC30 - Photo-chemicals PC31 - Polishes and wax blends PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC40 - Extraction agents SU22 - Professional uses
Sector(s) of use	

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC11 - Non industrial spraying
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Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day
Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

Predicted No Effect Concentration (PNEC)

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

**ES01569 - SODIUM METABISULFITE (231-673-0) -
Professional use of medium dusty solids/powders of
sodium metabisulfite as such or in preparations**

Revision date 24-Oct-2025

Calculation method Used EUSES model
Msafe 31852 kg/d
Remarks Calculated as Sulphite
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method	MEASE		
Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC17 - Lubrication at high energy	Worker - inhalative, long-term	5 mg/m ³	0.5

conditions and in partly open process	- systemic		
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	2.5 mg/m ³	0.25
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations with metals	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	8 mg/m ³	0.8

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	SODIUM METABISULPHITE
Pure substance/mixture	Substance
REACH registration number	01-2119531326-45-XXXX
CAS No	7681-57-4
EC No (EU Index No)	231-673-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Solid, high dustiness)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC3 - Formulation in materials ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC6c - Industrial use of monomers for manufacture of thermoplastics ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7 - Industrial use of substances in closed systems 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
Process category(ies)	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 (multi-stage and/or significant contact) PROC6 - Calendaring operations 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 PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC17 - Lubrication at high energy conditions and in partly open process PROC18 - Greasing at high energy conditions PROC19 - Hand-mixing with intimate contact and only PPE available

Product category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles PROC25 - Other hot work operations with metals PROC26 - Handling of solid inorganic substances at ambient temperature
	PC1 - Adhesives, sealants PC2 - Adsorbent(s) PC7 - Base metals and alloys PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC17 - Hydraulic fluids PC18 - Ink and toners PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC30 - Photo-chemicals PC31 - Polishes and wax blends PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC38 - Welding and soldering products, flux products PC40 - Extraction agents SU22 - Professional uses
Sector(s) of use	

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)
- ERC3 - Formulation in materials
- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b - Industrial use of reactive processing aids
- ERC6c - Industrial use of monomers for manufacture of thermoplastics
- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 - Industrial use of substances in closed systems
- 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC11 - Non industrial spraying
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Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%

Physical form of product	Solid, high dustiness
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P2 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness or Liquid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
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Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC25 - Other hot work operations with metals
Covers concentrations up to	100%
Physical form of product	or Liquid Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC26 - Handling of solid inorganic substances at ambient temperature
Covers concentrations up to	100%
Physical form of product	Solid, high dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves Wear a half-mask respirator, selected in accordance with EN 529 Filter type: P1 See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

- ERC2 - Formulation of preparations (mixtures)

- ERC3 - Formulation in materials

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

- ERC6b - Industrial use of reactive processing aids

- ERC6c - Industrial use of monomers for manufacture of thermoplastics

- ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

- ERC7 - Industrial use of substances in closed systems

- 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

Predicted No Effect Concentration

(PNEC)

Freshwater

1 mg/l

Marine water 0.1 mg/l
Impact on Sewage Treatment 75.4 mg/l

Calculation method Used EUSES model
Msafe 31852 kg/d
Remarks Calculated as Sulphite
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Inhalation 10 mg/m³

Calculation method	MEASE		
Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	2.5 mg/m ³	0.25
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC16 - Using material as fuel	Worker - inhalative, long-term	5 mg/m ³	0.5

sources, limited exposure to unburned product to be expected	- systemic		
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting	Worker - inhalative, long-term - systemic	2.5 mg/m ³	0.25
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55
PROC25 - Other hot work operations with metals	Worker - inhalative, long-term - systemic	4 mg/m ³	0.4
PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	5 mg/m ³	0.5

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name SODIUM METABISULPHITE
Pure substance/mixture Substance
REACH registration number 01-2119531326-45-XXXX
CAS No 7681-57-4
EC No (EU Index No) 231-673-0
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Professional use Manufacture of wood and wood products
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) 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
Process category(ies) 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
Sector(s) of use SU22 - Professional uses SU6a - Manufacture of wood and wood products SU18 - Manufacture of furniture

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - 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

Amounts used

Type	Daily amount per site
Value	28667
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	300
Release fraction to soil from process (initial release prior to RMM)	1%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Process category(ies)	PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles
Physical form of product	Solid
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable working clothes Use suitable eye protection and gloves See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid inhalation of the product Clean equipment and the work area every day

Section 3 - Exposure estimation

Environmental release category(ies) - 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

Predicted No Effect Concentration (PNEC)

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method

Used EUSES model

Msafe

31852 kg/d

Remarks

Calculated as Sulphite

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	25.2 mg/L	0.4
STP: Sewage Treatment Plant Marine water	57.06 mg/L	0.9
Freshwater	2.52 mg/L	0.9
Marine water	0.57 mg/L	0.2

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 10 mg/m³

Inhalation 10 mg/m³

Calculation method

MEASE

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC21 - Low energy manipulation of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	0.5 mg/m ³	0.05
PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles	Worker - inhalative, long-term - systemic	5.5 mg/m ³	0.55

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Used EUSES model. MEASE. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For scaling see. <http://www.ebrc.de/mease.html>. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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Pure substance/mixture Substance
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Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Photo-chemicals (Consumer use)
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC8b - Wide dispersive indoor use of reactive substances in open systems
Product category(ies) PC30 - Photo-chemicals
Sector(s) of use SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems

Amounts used

Type	Daily amount per site
Value	19.5
Units	kg/d

Other operational conditions of use affecting environmental exposure

Emission days	365
Release fraction to air from wide dispersive use (regional only)	0.10%
Release fraction to wastewater from wide dispersive use	2%
Release fraction to soil from wide dispersive use (regional only)	0%

Conditions and measures related to municipal sewage treatment plant

Type	Municipal STP
Removal efficiency (total)	99%

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow is 18000 m3/d
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Control measures to prevent releases

Air	Treat air emission to provide a typical removal efficiency of 99%
Water	Required removal efficiency (wastewater) 99%

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of consumer exposure

Covers concentrations up to	10-20 %
Physical form of product	Solid or Liquid
Use frequency	1 events per day
Risk management measures	Wash hands thoroughly after handling Avoid contact with eyes Wear goggles/face shield. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice Keep container tightly closed Keep away from children
Covers skin contact area up to	4370 cm ²
Operational conditions	Assumes activities are at room temperature

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	1 mg/l
Marine water	0.1 mg/l
Impact on Sewage Treatment	75.4 mg/l

Calculation method Used EUSES model

Msafe 1950 kg/d

Remarks Calculated as Sulphite
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Environment	predicted exposure level	Risk characterisation ratio (RCR)
STP: Sewage Treatment Plant Freshwater	0.16 mg/L	<0.01
STP: Sewage Treatment Plant Marine water	0.16 mg/L	<0.01
Freshwater	16.4 mg/L	0.01
Marine water	1.64 mg/L	<0.01

Derived No Effect Level (DNEL):

Oral 9.5 mg/kg/d

Remarks Qualitative approach used to conclude safe use

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Used EUSES model. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For scaling see. <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.