

Safety Data Sheet

SODIUM METABISULPHITE

Safety Data Sheet dated 11/3/2020 version 20



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

1.1. Product identifier

Identification of the substance:

Trade name: SODIUM METABISULPHITE, HP, TLG

Chemical name: SODIUM METABISULPHITE

CAS number: 7681-57-4

EC number: 231-673-0

Index number: 016-063-00-2

Registration Number 01-2119531326-45-0004

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

Recommended use: FOR INDUSTRIAL USE; FOOD ADDITIVE; REDUCING AGENT; WHITENING AGENT; FOR PROFESSIONAL USE; See attached exposure scenario.

Uses advised against: N.A.

1.3. Details of the supplier of the safety data sheet

Company:

ESSECO S.r.l. Via San Cassiano 99

28069 - Trecate (NO)

Italy

Phone: +39-0321-7901

Competent person responsible for the safety data sheet: sds@esseco.it

1.4. Emergency telephone number

Esseco - Phone n. +39-0321-7901

Malta: 112

Ireland: Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.

Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

Acute Tox. 4 Harmful if swallowed.

Eye Dam. 1 Causes serious eye damage.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Pictograms and Signal Words



Danger

Hazard statements

H302 Harmful if swallowed.

H318 Causes serious eye damage.

Precautionary statements

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
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 doctor.
P330	Rinse mouth.

Special Provisions:

EUH031 Contact with acids liberates toxic gas.

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

None.

2.3. Other hazards

No PBT/vPvB Ingredients are present

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance Identifications:	SODIUM METABISULPHITE
CAS number:	7681-57-4
EC number:	231-673-0
Index number:	016-063-00-2
Registration Number	01-2119531326-45-0004

3.2. Mixtures

N.A.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

- Immediately take off all contaminated clothing.
- Remove contaminated clothing immediately and dispose off safely.
- After contact with skin, wash immediately with soap and plenty of water.
- OBTAIN IMMEDIATE MEDICAL ATTENTION.

In case of eyes contact:

- After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
- Protect uninjured eye.

In case of Ingestion:

- Do not induce vomiting, get medical attention showing the SDS and label hazardous.
- OBTAIN IMMEDIATE MEDICAL ATTENTION.
- Give nothing to eat or drink.

In case of Inhalation:

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

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

Eye irritation

Eye damages

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

- Water.; Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

5.3. Advice for firefighters

Wear suitable protective clothing (helmet, protective clothings, goggles, fire resistant gloves, boots) and protect respiratory organs (self contained breathing apparatus).

Use suitable breathing apparatus .

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

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

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

6.2. Environmental precautions

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

Retain contaminated washing water and dispose it.

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

6.3. Methods and material for containment and cleaning up

Wash with plenty of water.

Suitable material for taking up: absorbing material, organic, sand

Dispose of the collected material in accordance with the current regulations.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes; Do not breathe dust. See, too, paragraph 8 below.

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

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

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Keep containers tightly closed and properly labelled.

Incompatible materials:

Keep away from oxidizing agents

Keep away from acids.

Instructions as regards storage premises:

Keep this product in a dry place.; Cool and adequately ventilated.

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL Type	Country	Ceiling	Long Term mg/m3	Long Term ppm	Short Term mg/m3	Short Term ppm	Behaviour Notes
ACGIH	NNN		5.000				A4 - URT irr
National	FRANCE		5.000				
National	BELGIUM		5.000				
National	DENMARK		5.000		10.000		
National	IRELAND		5.000				
National	SPAIN		5.000				
National	SWITZERLAND		5.000				inhalable aerosol

Predicted No Effect Concentration (PNEC) values

PNEC Limit	Exposure Route	Exposure Frequency	Remark
1 mg/l	Fresh Water		
0.1 mg/l	Marine water		
75.4 mg/l	Microorganisms in sewage treatments		

Derived No Effect Level (DNEL) values

Worker Industry	Worker Professional	Consumer	Exposure Route	Exposure Frequency	Remark
225 mg/m3			Human Inhalation	Long Term, systemic effects	
		66 mg/m3	Human Inhalation	Long Term, local effects	
		8.6 mg/kg	Human Oral	Long Term, local effects	

8.2. Exposure controls

Individual protection measures:

Personal protective equipment selections vary based on potential exposure conditions and working conditions.

The final choice of protective equipment will depend upon a risk assessment.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Please see both sections 5 and 6 for information about personal protective equipment to be worn in an emergency (e.g.: fire or unintentional release of the substance).

Eye protection:

Safety goggles with side protection.; Technical reference standard: UNI EN 166

Protection for skin:

Wear chemical resistant clothing.; Technical reference standard: UNI EN 13034; Wear chemical resistant safety shoes.; Technical reference standard: UNI EN 20345

Protection for hands:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Glove suitability and breakthrough time will differ depending on the specific use conditions.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Wear suitable gloves tested to EN374.; Suitable material:; NBR (nitrile rubber) (Recommended thickness of the material: 0.4 mm; Permeation time: > 480 min)

Respiratory protection:

Depending on the potential for exposure, select respiratory protective equipment suitable for the specific conditions of use and in compliance with current legislation.

Half-face mask with combined filter; Technical reference standard for filters to be used in the presence of gases and vapours: UNI EN 14387; Combined filter: E/P1-P2; Filter mask FFP2/FFP3 for solid particles; Technical reference standard: UNI EN 149

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State Solid
Appearance and colour: Solid
Odour: Pungent
Odour threshold: N.A.
pH: 3.5-5.0 (5%)
Melting point / freezing point: > 150°C
Initial boiling point and boiling range: N.A.
Flash point: N.A.
Evaporation rate: N.A.
Upper/lower flammability or explosive limits: N.A.
Vapour density: N.A.
Vapour pressure: N.A.
Relative density: 1.2-1.3 Kg/dm³
Solubility in water: 470 g/L H₂O (20°C)
Solubility in oil: N.A.
Partition coefficient (n-octanol/water): -3.70
Auto-ignition temperature: N.A.
Decomposition temperature: N.A.
Viscosity: N.A.
Explosive properties: N.A.
Oxidizing properties: N.A.
Solid/gas flammability: N.A.
Volatile Organic compounds - VOCs = N.A.

9.2. Other information

Substance Groups relevant properties N.A.
Miscibility: N.A.
Conductivity: N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Humidity; Keep away from heat and direct sunlight.

10.5. Incompatible materials

Acids; Oxidants

10.6. Hazardous decomposition products

Toxic gases; Sulphur dioxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information of the Substance

- | | |
|----------------------------------|---|
| a) acute toxicity | The product is classified: Acute Tox. 4(H302)
LD50 Oral Rat > 1540 mg/kg bw |
| b) skin corrosion/irritation | Not classified
Based on available data, the classification criteria are not met
Skin Irritant Negative - Based on available data, the classification criteria are not met
- OECD 404 |
| c) serious eye damage/irritation | The product is classified: Eye Dam. 1(H318)
Eye Corrosive Rabbit Positive - OECD 405 |

d) respiratory or skin sensitisation	Not classified Based on available data, the classification criteria are not met Skin Sensitization Negative - Based on available data, the classification criteria are not met - OECD 429
e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified Based on available data, the classification criteria are not met No Observed Adverse Effect Level Oral Rat 108.00000
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards.

Based on available data, the classification criteria are not met

- a) Aquatic acute toxicity : LC50 Fish *Salmo gairdneri* = 149.600 mg/L 96h - mg SO3 2-/L
- a) Aquatic acute toxicity : EC50 *Daphnia* = 74.90000 mg/L 48h - mg SO3 2-/L
- a) Aquatic acute toxicity : EC50 Algae *Scenedesmus subspicatus* = 36.80000 mg/L 72h - mg SO3 2-/L
- b) Aquatic chronic toxicity : EC10 Fish *Danio rerio* = 50.000 mg/L - mg SO3 2-/L
- b) Aquatic chronic toxicity : EC10 Algae *Scenedesmus subspicatus* = 28.000 mg/L - mg SO3 2-/L
- b) Aquatic chronic toxicity : NOEC *Daphnia* 8.410 mg/L - mg SO3 2-/L

12.2. Persistence and degradability

Persistence/Degradability:

Not persistent and Biodegradable

12.3. Bioaccumulative potential

Bioaccumulation

Not bioaccumulative

12.4. Mobility in soil

Mobility in soil

Not mobile

12.5. Results of PBT and vPvB assessment

No PBT/vPvB Ingredients are present

12.6. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number

N.A.

14.2. UN proper shipping name

N.A.

14.3. Transport hazard class(es)

N.A.

14.4. Packing group

N.A.

14.5. Environmental hazards

N.A.

14.6. Special precautions for user

N.A.

Road and Rail (ADR-RID) :

N.A.

Air (IATA) :

N.A.

Sea (IMDG) :

N.A.

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

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Regulation (EC) n. 1907/2006 (REACH)

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

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) 2015/830

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

Restrictions related to the product: None.

Restrictions related to the substances contained: None.

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

N.A.

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

No substances listed

German Water Hazard Class.

Class 1: slightly hazardous for water.

SVHC Substances:

No data available

15.2. Chemical safety assessment

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

SECTION 16: Other information

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

Main bibliographic sources:

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

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

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

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

This MSDS cancels and replaces any preceding release.

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

ACGIH: American Conference of Governmental Industrial Hygienists

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

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

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

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

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

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KAFH: KAFH

KSt: Explosion coefficient.

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

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

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/A: Not Applicable

N/D: Not defined/ Not available

NA: Not available

NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 2. HAZARDS IDENTIFICATION
- 3. COMPOSITION/INFORMATION ON INGREDIENTS
- 4. FIRST AID MEASURES
- 5. FIRE-FIGHTING MEASURES
- 6. ACCIDENTAL RELEASE MEASURES
- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 9. PHYSICAL AND CHEMICAL PROPERTIES
- 10. STABILITY AND REACTIVITY
- 11. TOXICOLOGICAL INFORMATION
- 12. ECOLOGICAL INFORMATION
- 14. TRANSPORT INFORMATION
- 15. REGULATORY INFORMATION

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Summary of Parameters used for assessing safe use:

DNELs: Inhalation: 225 mg/m³ Worker / Long Term - systemic effects
Inhalation: 66 mg/m³ bw/d general population / Long Term - local effects
Oral: 8.6 mg/kg bw/d general population / Long Term - local effects
(please also refer to section 8 SDS)

PNECs: Freshwater: 1 mg/L
Marine water: 0.1 mg/L
Sewage treatment plant: 75.4 mg/L
(please also refer to section 8 SDS)

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 1: Manufacture and industrial uses of slurries/pastes of sodium metabisulfite

SU1, SU2a, SU2b, SU3, SU4, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU23, PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC13, PC14, PC15, PC17, PC18, PC19, PC20, PC23, PC24, PC25, PC26, PC28, PC30, PC31, PC32, PC34, PC35, PC37, PC38, PC39, PC40

Manufacture and industrial uses of slurries/pastes of sodium metabisulfite
Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparation	ERC 2
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerization processes in production of resins, rubber, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b
Wide dispersive outdoor use of long-life articles and	ERC 10a

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



materials with low release	
Worker	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Industrial spraying	PROC 7
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Use of blowing agents in manufacture of foam	PROC 12
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day

2.2 Control of workers exposure

Product characteristics:	Slurry/paste
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	Local exhaust ventilation - efficiency of at least [%]: 78. (PROC 7)
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 1	0.001 mg/m ³ (<0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.
PROC 2	0.001 mg/m ³ (<0.001)	
PROC 3	0.01 mg/m ³ (0.001)	
PROC 4	0.05 mg/m ³ (0.005)	
PROC 5	0.05 mg/m ³ (0.005)	
PROC 7	4.4 mg/m ³ (0.44)	
PROC 8a	0.05 mg/m ³ (0.005)	
PROC 8b	0.01 mg/m ³ (0.001)	
PROC 9	0.01 mg/m ³ (0.001)	
PROC 10	0.05 mg/m ³ (0.005)	
PROC 12	0.001 mg/m ³ (<0.001)	
PROC 13	0.01 mg/m ³ (0.001)	
PROC 14	0.01 mg/m ³ (0.001)	
PROC 15	0.01 mg/m ³ (0.001)	
PROC 16	0.01 mg/m ³ (0.001)	
PROC 17	0.1 mg/m ³ (0.01)	
PROC 18	0.1 mg/m ³ (0.01)	
PROC 19	0.05 mg/m ³ (0.005)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 2: Manufacture and industrial uses of low dusty solids/powders of sodium metabisulfite

SU1, SU2a, SU2b, SU3, SU4, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU23, PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC13, PC14, PC15, PC17, PC18, PC19, PC20, PC23, PC24, PC25, PC26, PC28, PC30, PC31, PC32, PC34, PC35, PC37, PC38, PC39, PC40

Manufacture and industrial uses of low dusty solids/powders of sodium metabisulfite
Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Industrial spraying	PROC 7
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Low energy manipulation of substances bound in materials and/or articles	PROC 21
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Other hot work operations with metals	PROC 25
Handling of solid inorganic substances at ambient temperature	PROC 26
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day
2.2 Control of workers exposure	
Product characteristics:	solid/powder (all other applicable PROCs) solid/powder/molten (PROC 22, 23 & 25)
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).
Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk	
Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product. Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear goggles (qualitative risk assessment) Use of gloves and working clothes have been considered additionally.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 1	0.01 mg/m ³ (0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 2	0.01 mg/m ³ (0.001)	
PROC 3	0.1 mg/m ³ (0.01)	
PROC 4	0.5 mg/m ³ (0.05)	
PROC 5	0.5 mg/m ³ (0.05)	
PROC 6	0.1 mg/m ³ (0.01)	
PROC 7	1 mg/m ³ (0.1)	
PROC 8a	0.5 mg/m ³ (0.05)	
PROC 8b	0.1 mg/m ³ (0.01)	
PROC 9	0.1 mg/m ³ (0.01)	
PROC 10	0.5 mg/m ³ (0.05)	
PROC 13	0.1 mg/m ³ (0.01)	
PROC 14	0.1 mg/m ³ (0.01)	
PROC 15	0.1 mg/m ³ (0.01)	
PROC 16	0.1 mg/m ³ (0.01)	
PROC 17	1 mg/m ³ (0.1)	
PROC 18	1 mg/m ³ (0.1)	
PROC 19	0.5 mg/m ³ (0.05)	
PROC 21	0.5 mg/m ³ (0.05)	

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



PROC 22	7 mg/m ³ (0.7)	
PROC 23	2 mg/m ³ (0.2)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	2 mg/m ³ (0.2)	
PROC 26	1.5 mg/m ³ (0.15)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 3: Manufacture and industrial uses of medium dusty solids/powders of sodium metabisulfite

SU1, SU2a, SU2b, SU3, SU4, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU23, PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC13, PC14, PC15, PC17, PC18, PC19, PC20, PC23, PC24, PC25, PC26, PC28, PC30, PC31, PC32, PC34, PC35, PC37, PC38, PC39, PC40

Manufacture and industrial uses of medium dusty solids/powders of sodium metabisulfite
Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Industrial spraying	PROC 7
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24
Other hot work operations with metals	PROC 25
Handling of solid inorganic substances at ambient	PROC 26

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



temperature	
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day
2.2 Control of workers exposure	
Product characteristics:	solid/powder (all other PROCs) solid/powder/molten (PROC 22, 23 & 25)
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently – (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).
Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk	
Technical conditions and measures:	Local exhaust ventilation - efficiency of at least [%]: 78. (PROC 7, 17 & 18)
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2


3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:
Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 1	0.01 mg/m ³ (0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 2	0.5 mg/m ³ (0.05)	
PROC 3	1 mg/m ³ (0.1)	
PROC 4	5 mg/m ³ (0.5)	
PROC 5	5 mg/m ³ (0.5)	
PROC 6	5 mg/m ³ (0.5)	
PROC 7	4.4 mg/m ³ (0.44)	
PROC 8a	5 mg/m ³ (0.5)	
PROC 8b	5 mg/m ³ (0.5)	
PROC 9	5 mg/m ³ (0.5)	
PROC 10	5 mg/m ³ (0.5)	
PROC 13	1 mg/m ³ (0.1)	
PROC 14	1 mg/m ³ (0.1)	
PROC 15	0.5 mg/m ³ (0.05)	
PROC 16	5 mg/m ³ (0.5)	
PROC 17	4.4 mg/m ³ (0.44)	
PROC 18	4.4 mg/m ³ (0.44)	
PROC 19	5 mg/m ³ (0.5)	

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



PROC 22	7 mg/m ³ (0.7)	
PROC 23	2 mg/m ³ (0.2)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	2 mg/m ³ (0.2)	
PROC 26	4 mg/m ³ (0.4)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 4: Manufacture and industrial uses of high dusty solids/powders of sodium metabisulfite

SU1, SU2a, SU2b, SU3, SU4, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU23, PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC13, PC14, PC15, PC17, PC18, PC19, PC20, PC23, PC24, PC25, PC26, PC28, PC30, PC31, PC32, PC34, PC35, PC37, PC38, PC39, PC40

Manufacture and industrial uses of high dusty solids/powders of sodium metabisulfite
Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Industrial spraying	PROC 7
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24
Other hot work operations with metals	PROC 25
Handling of solid inorganic substances at ambient	PROC 26

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



temperature	
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day
2.2 Control of workers exposure	
Product characteristics:	solid/powder (all other PROCs) solid/powder/molten (PROC 22, 23 & 25)
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently – (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).
Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk	
Technical conditions and measures:	Local exhaust ventilation - efficiency of at least [%]:78. (PROC 4, 5, 6, 7, 8a, 8b, 9, 10, 14, 16, 17, 18 & 26)
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear a half mask respirator with type FFP1 filter (APF=4) (PROC 7, 8a, 17, 18 & 19)
	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 1	0.01 mg/m ³ (0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.
PROC 2	1 mg/m ³ (0.1)	
PROC 3	1 mg/m ³ (0.1)	
PROC 4	5.5 mg/m ³ (0.55)	
PROC 5	5.5 mg/m ³ (0.55)	
PROC 6	5.5 mg/m ³ (0.55)	
PROC 7	5.5 mg/m ³ (0.55)	
PROC 8a	2.75 mg/m ³ (0.275)	
PROC 8b	5.5 mg/m ³ (0.55)	
PROC 9	4.4 mg/m ³ (0.44)	
PROC 10	2.2 mg/m ³ (0.22)	
PROC 13	5 mg/m ³ (0.5)	
PROC 14	2.2 mg/m ³ (0.22)	
PROC 15	5 mg/m ³ (0.5)	
PROC 16	2.2 mg/m ³ (0.22)	
PROC 17	2.75 mg/m ³ (0.275)	
PROC 18	2.75 mg/m ³ (0.275)	
PROC 19	6.25 mg/m ³ (0.625)	

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PROC 22	7 mg/m ³ (0.7)	
PROC 23	2 mg/m ³ (0.2)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	2 mg/m ³ (0.2)	
PROC 26	2.2 mg/m ³ (0.22)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**1. Exposure scenario title:****Exposure Scenario 5: Industrial use of sodium metabisulfite in the wood and furniture industry**

SU3 (Industrial uses), SU6a, SU18

Industrial use of sodium metabisulfite in the wood and furniture industry

Environment

Industrial use resulting in inclusion into or onto a matrix

ERC 5

Industrial use of monomers for manufacture of thermo-plastics

ERC 6b

Worker

Reaction, cooking

PROC 4

Blending, mixing

PROC 5

Pressing of objects containing residues of sodium metabisulfite

PROC 6

Handling of sodium metabisulfite (injection, loading, unloading, adding to reaction vessel)

PROC 8b

Handling of objects containing residues of sodium metabisulfite at ambient temperature, low-energy manipulations not resulting in abrasion, e.g. screening, forming, storage

PROC 21

handling of objects containing residues of sodium metabisulfite at elevated temperature, hot pressing causing abrasion, e.g. cutting, sizing

PROC 24

2. Conditions of use affecting exposure**2.1 Control of environmental exposure**

Day amount used on site:

28667 kg/day

Emission days per year:

300

Release fraction to air from process:

Treat air emission to provide a typical removal efficiency of: 99%

Release fraction to waste water:

Required Removal Efficiency (wastewater): 99%

Release fraction to soil:

Release to soil from process: 1%

Environmental factors not influenced by risk management:

Receiving surface water flow is 18000 m³/d.

Conditions and measures related to municipal sewage treatment plant:

Removal Efficiency (total): 99%.

Maximum allowable site tonnage (Msafe):

31852 kg/day

2.2 Control of workers exposure

Product characteristics:

Solid (PROC 6, 21 & 24)
Solid / powder (PROC 4, 5 & 8b)

Duration and frequency of use:

Covers daily exposures up to 8 hours - unless stated differently -

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

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	(all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	Local exhaust ventilation - efficiency of at least [%]:78. (PROC 4, 5 & 8b)
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 4	5.5 mg/m ³ (0.55)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant

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PROC 5	5.5 mg/m ³ (0.55)	exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 6	5 mg/m ³ (0.5)	
PROC 8b	5.5 mg/m ³ (0.55)	
PROC 21	0.5 mg/m ³ (0.05)	
PROC 24	5.5 mg/m ³ (0.55)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>.

The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**1. Exposure scenario title:****Exposure Scenario 6: Professional uses of slurries/pastes of sodium metabisulfite as such or in preparation**

SU22
 PC1, PC2, PC7, PC9a, PC9b, PC14, PC15, PC17, PC18, PC20, PC23, PC24, PC25,
 PC26, PC30, PC31, PC34, PC35, PC37, PC38, PC40

Professional uses of slurries/pastes of sodium metabisulfite as such or in preparation
 Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners

Environment

Manufacture of substances	ERC 1
Formulation of preparation	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerization processes in production of resins, rubber, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b
Wide dispersive outdoor use of long-life articles and	ERC 10a

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

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materials with low release	
Worker	
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Non industrial spraying	PROC 11
Use of blowing agents in manufacture of foam	PROC 12
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Heat and pressure transfer fluids in dispersive, professional use but closed systems	PROC 20
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%

Addendum code: NPS3(0812)2

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Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day

2.2 Control of workers exposure

Product characteristics:	Slurry/paste
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear a half mask respirator with type P1 filter (APF=4) (PROC 11)
	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2

Addendum code: NPS3(0812)2

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Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 2	0.001 mg/m ³ (<0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 3	0.01 mg/m ³ (0.001)	
PROC 4	0.1 mg/m ³ (0.01)	
PROC 5	0.1 mg/m ³ (0.01)	
PROC 8a	0.05 mg/m ³ (0.005)	
PROC 8b	0.05 mg/m ³ (0.005)	
PROC 9	0.05 mg/m ³ (0.005)	
PROC 10	0.05 mg/m ³ (0.005)	
PROC 11	5 mg/m ³ (0.5)	
PROC 12	0.001 mg/m ³ (<0.001)	
PROC 13	0.05 mg/m ³ (0.005)	
PROC 14	0.1 mg/m ³ (0.01)	
PROC 15	0.01 mg/m ³ (0.001)	
PROC 16	0.5 mg/m ³ (0.05)	
PROC 17	1 mg/m ³ (0.1)	
PROC 18	0.5 mg/m ³ (0.05)	
PROC 19	0.05 mg/m ³ (0.005)	
PROC 20	0.001 mg/m ³ (<0.001)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 7: Professional uses of low dusty solids/powders of sodium metabisulfite as such or in preparation

SU22

PC1, PC2, PC7, PC9a, PC9b, PC14, PC15, PC17, PC18, PC20, PC23, PC24, PC25, PC26, PC30, PC31, PC34, PC35, PC37, PC38, PC40

Professional uses of low dusty solids/powders of sodium metabisulfite as such or in preparation.

Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

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Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Non industrial spraying	PROC 11
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by ableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Low energy manipulation of substances bound in materials and/or articles	PROC 21
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24
Other hot work operations with metals	PROC 25

Addendum code: NPS3(0812)2

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Handling of solid inorganic substances at ambient temperature	PROC 26
2. Conditions of use affecting exposure	
2.1 Control of environmental exposure	
Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day
2.2 Control of workers exposure	
Product characteristics:	Solid/powder/molten (PROC 22, 23 & 25) Solid/powder (other PROCs)
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).
Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk	
Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear a half mask respirator with type P1 filter (APF=4) (PROC 17 & 22)
	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

Addendum code: NPS3(0812)2

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Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 2	0.01 mg/m ³ (0.001)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 3	0.1 mg/m ³ (0.01)	
PROC 4	1 mg/m ³ (0.1)	
PROC 5	1 mg/m ³ (0.1)	
PROC 6	1 mg/m ³ (0.1)	
PROC 8a	0.5 mg/m ³ (0.05)	
PROC 8b	0.5 mg/m ³ (0.05)	
PROC 9	0.5 mg/m ³ (0.05)	
PROC 10	0.5 mg/m ³ (0.05)	
PROC 11	1 mg/m ³ (0.1)	
PROC 13	0.5 mg/m ³ (0.05)	
PROC 14	1 mg/m ³ (0.1)	
PROC 15	0.1 mg/m ³ (0.01)	
PROC 16	5 mg/m ³ (0.5)	
PROC 17	2.5 mg/m ³ (0.25)	
PROC 18	5 mg/m ³ (0.5)	
PROC 19	0.5 mg/m ³ (0.05)	
PROC 21	0.5 mg/m ³ (0.05)	
PROC 22	2.5 mg/m ³ (0.25)	

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



PROC 23	5 mg/m ³ (0.5)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	4 mg/m ³ (0.4)	
PROC 26	3 mg/m ³ (0.3)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



1. Exposure scenario title:

Exposure Scenario 8: Professional uses of medium dusty solids/powders of sodium metabisulfite as such or in preparation

SU22
PC1, PC2, PC7, PC9a, PC9b, PC14, PC15, PC17, PC18, PC20, PC23, PC24, PC25, PC26, PC30, PC31, PC34, PC35, PC37, PC38, PC40

Professional uses of medium dusty solids/powders of sodium metabisulfite as such or in preparation
Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Non industrial spraying	PROC 11
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by ableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24
Other hot work operations with metals	PROC 25
Handling of solid inorganic substances at ambient temperature	PROC 26

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**2. Conditions of use affecting exposure****2.1 Control of environmental exposure**

Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day

2.2 Control of workers exposure

Product characteristics:	Solid/powder/molten (PROC 22, 23 & 25) Solid/powder (other PROCs)
Duration and frequency of use:	Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product. Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear a half mask respirator with type P1 filter (APF=4) (PROC 11, 16, & 22)
	Wear a half mask respirator with type P2 filter (APF=10) (PROC 17 & 18)
	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 2	1 mg/m ³ (0.1)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 3	1 mg/m ³ (0.1)	
PROC 4	5 mg/m ³ (0.5)	
PROC 5	5 mg/m ³ (0.5)	
PROC 6	5 mg/m ³ (0.5)	
PROC 8a	5 mg/m ³ (0.5)	
PROC 8b	5 mg/m ³ (0.5)	
PROC 9	5 mg/m ³ (0.5)	
PROC 10	5 mg/m ³ (0.5)	
PROC 11	5 mg/m ³ (0.5)	
PROC 13	5 mg/m ³ (0.5)	
PROC 14	5 mg/m ³ (0.5)	
PROC 15	0.5 mg/m ³ (0.05)	
PROC 16	5 mg/m ³ (0.5)	
PROC 17	5 mg/m ³ (0.5)	
PROC 18	5 mg/m ³ (0.5)	
PROC 19	5 mg/m ³ (0.5)	
PROC 22	2.5 mg/m ³ (0.25)	

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



PROC 23	5 mg/m ³ (0.5)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	4 mg/m ³ (0.4)	
PROC 26	8 mg/m ³ (0.8)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**1. Exposure scenario title:****Exposure Scenario 9: Professional uses of medium dusty solids/powders of sodium metabisulfite as such or in preparation**

SU22
 PC1, PC2, PC7, PC9a, PC9b, PC14, PC15, PC17, PC18, PC20, PC23, PC24, PC25,
 PC26, PC30, PC31, PC34, PC35, PC37, PC38, PC40

Professional uses of medium dusty solids/powders of sodium metabisulfite as such or in preparation
 Use of Na₂S₂O₅ in chemical industry, photographic industry, textile/leather industry, rubber industry, paper, pulp and bleaching industry, food industry, water treatment, mining and metal industry, for distribution/trader and formulator purposes, in fiber, additive for cement, heparin extraction, pharma industry/ cosmetic industry, detergents/cleaners.

Environment

Manufacture of substances	ERC 1
Formulation of preparations	ERC 2
Formulation in materials	ERC 3
Industrial use of processing aids in processes and products, not becoming part of articles	ERC 4
Industrial use resulting in inclusion into or onto a matrix	ERC 5
Industrial use resulting in manufacture of another substance (use of intermediates)	ERC 6a
Industrial use of reactive processing aids	ERC 6b
Industrial use of monomers for manufacture of thermo-plastics	ERC 6c
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	ERC 6d
Industrial use of substances in closed systems	ERC 7
Wide dispersive indoor use of processing aids in open systems	ERC 8a
Wide dispersive indoor use of reactive substances in open systems	ERC 8b
Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC 8c
Wide dispersive outdoor use of processing aids in open systems	ERC 8d
Wide dispersive outdoor use of reactive substances in open systems	ERC 8e
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC 8f
Wide dispersive indoor use of substances in closed systems	ERC 9a
Wide dispersive outdoor use of substances in closed systems	ERC 9b

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2



Wide dispersive outdoor use of long-life articles and materials with low release	ERC 10a
Worker	
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Calendering operations	PROC 6
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Roller application or brushing	PROC 10
Non industrial spraying	PROC 11
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC 14
Use as laboratory reagent	PROC 15
Using material as fuel sources, limited exposure to unburned product to be expected	PROC 16
Lubrication at high energy conditions and in partly open process	PROC 17
Greasing at high energy conditions	PROC 18
Hand-mixing with intimate contact and only PPE available	PROC 19
Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	PROC 22
Open processing and transfer operations with minerals/metals at elevated temperature	PROC 23
High (mechanical) energy work-up of substances bound in materials and/or articles	PROC 24
Other hot work operations with metals	PROC 25
Handling of solid inorganic substances at ambient temperature	PROC 26

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**2. Conditions of use affecting exposure****2.1 Control of environmental exposure**

Day amount used on site:	28667 kg/day
Emission days per year:	300
Release fraction to air from process:	Treat air emission to provide a typical removal efficiency of: 99%
Release fraction to waste water:	Required Removal Efficiency (wastewater): 99%
Release fraction to soil:	Release to soil from process: 1%
Environmental factors not influenced by risk management:	Receiving surface water flow is 18000 m ³ /d.
Conditions and measures related to municipal sewage treatment plant:	Removal Efficiency (total): 99%.
Maximum allowable site tonnage (Msafe):	31852 kg/day

2.2 Control of workers exposure

Product characteristics:	Solid/molten (PROC 22, 23 & 25) Solid (other PROCs)
Duration and frequency of use:	Covers daily exposures up to 1 hour (PROC 11, 17 & 18) Covers daily exposures up to 8 hours (all other PROCs)
Concentration of substance in use:	Not relevant.
Temperature:	Not restricted.
Other relevant operational conditions:	The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m ³ /shift (8 hours).

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product. Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear a half mask respirator with type P1 filter (APF=4) (PROC 9, 10, 22 & 26) Wear a half mask respirator with type P2 filter (APF=10) (PROC 4, 5, 6, 8a, 8b, 11, 14, 16, 17, 18 & 19) Wear goggles (qualitative risk assessment) Use of gloves and working clothes have been considered additionally.

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 2	5 mg/m ³ (0.5)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario
PROC 3	5 mg/m ³ (0.5)	
PROC 4	5 mg/m ³ (0.5)	
PROC 5	5 mg/m ³ (0.5)	
PROC 6	5 mg/m ³ (0.5)	
PROC 8a	5 mg/m ³ (0.5)	
PROC 8b	5 mg/m ³ (0.5)	
PROC 9	5 mg/m ³ (0.5)	
PROC 10	2.5 mg/m ³ (0.25)	
PROC 11	4 mg/m ³ (0.4)	
PROC 13	5 mg/m ³ (0.5)	
PROC 14	5 mg/m ³ (0.5)	
PROC 15	5 mg/m ³ (0.5)	
PROC 16	5 mg/m ³ (0.5)	
PROC 17	4 mg/m ³ (0.4)	
PROC 18	4 mg/m ³ (0.4)	
PROC 19	5 mg/m ³ (0.5)	
PROC 22	2.5 mg/m ³ (0.25)	

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



PROC 23	5 mg/m ³ (0.5)	
PROC 24	5.5 mg/m ³ (0.55)	
PROC 25	4 mg/m ³ (0.4)	
PROC 26	5 mg/m ³ (0.5)	

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO₃²⁻ after reacting/oxidizing in the process.

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM**Sodium Metabisulphite (Sodium Metabisulfite)**

Dated 08-2012; version 2

**1. Exposure scenario title:****Exposure Scenario 10: Professional use of wood products or furniture containing sodium metabisulfite**

SU22, SU6a, SU18

Professional use of wood products or furniture containing sodium metabisulfite

Environment

Wide dispersive indoor use of long-life articles and materials with low release

ERC 11a

Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)

ERC 11b

Worker

Handling of objects containing residues of sodium metabisulfite at ambient temperature, low-energy manipulations not resulting in abrasion

PROC 21

Handling of objects containing residues of sodium metabisulfite causing abrasion, e.g. cutting, sizing

PROC 24

2. Conditions of use affecting exposure**2.1 Control of environmental exposure**

Day amount used on site:

28667 kg/day

Emission days per year:

300

Release fraction to air from process:

Treat air emission to provide a typical removal efficiency of: 99%

Release fraction to waste water:

Required Removal Efficiency (wastewater): 99%

Release fraction to soil:

Release to soil from process: 1%

Environmental factors not influenced by risk management:

Receiving surface water flow is 18000 m³/d.

Conditions and measures related to municipal sewage treatment plant:

Removal Efficiency (total): 99%.

Maximum allowable site tonnage (Msafe):

31852 kg/day

2.2 Control of workers exposure

Product characteristics:

Solid

Duration and frequency of use:

Covers daily exposures up to 8 hours - unless stated differently - (all PROCs)

Concentration of substance in use:

Not relevant.

Temperature:

Not restricted.

Other relevant operational conditions:

The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Technical conditions and measures:	No additional risk management measures required.
Organisational measures to prevent /limit releases, dispersion and exposure (all PROCs):	Avoid inhalation of the product.
	Regular cleaning of work area. Regular cleaning of equipment.
Conditions and measures related to personal protection, hygiene and health evaluation (all PROCs):	Wear goggles (qualitative risk assessment)
	Use of gloves and working clothes have been considered additionally.

3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC4 (worst case)

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	25.2	0.4
STP (marine)	57.06	0.9
Local freshwater	2.52	0.9
Sediment freshwater	Not applicable	Not applicable
Local marine water	0.57	0.2
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable
Man via the environment	Not applicable	Not applicable

Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.

Worker

Contributing Scenario	Inhalation Exposure Estimate (RCR) Based on MEASE	Dermal
PROC 21	0.5 mg/m ³ (0.05)	Due to the negligible dermal absorption of sodium metabisulfite, the dermal route is not a relevant exposure path for sodium metabisulfite and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenarioscenario.
PROC 24	5.5 mg/m ³ (0.55)	

Addendum code: NPS3(0812)2

EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The quantitative risk characterization for this worker exposure (long-term systemic effects) and has been calculated by MEASE tool, available at the following link: (www.ebrc.de/mease.html)

The quantitative risk characterization for this environmental exposure (long-term systemic effects) and has been calculated by EUSES tool. The Metal EUSES calculator for DUs can be freely downloaded from <http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal speciation box can be left blank. 0 can be filled in for all partition coefficients and PECs regional. Make sure that the tonnage is the tonnage of SO_3^{2-} after reacting/oxidizing in the process.

1. Exposure scenario title:

Exposure Scenario 11: Consumer use of sodium metabisulfite in photographic applications (wide dispersive use scenario)

SU21

Consumer use of sodium metabisulfite in photographic applications

Environment

Wide dispersive indoor use of reactive substances in open systems

ERC 8b

Consumer

Photochemicals (Pouring of liquid concentrate, Pouring of powder formulation, Tank processing, Tray processing of films)

PC 30

2. Conditions of use affecting exposure

2.1 Control of environmental exposure

Day amount used on site:

19.5 kg/day

Emission days per year:

365 (ERC 8b default)

Release fraction to air from process:

0.10% (ERC 8b default)

Release fraction to waste water:

2% (ERC 8b default)

Release fraction to soil:

0% (ERC 8b default)

Environmental factors not influenced by risk management:

Receiving surface water flow is 18000 m^3/d .

Conditions and measures related to municipal sewage treatment plant:

Removal Efficiency Fraction (offsite; STP): 0.99%

Maximum allowable site tonnage (Msafe):

1950 kg/day

2.2 Control of consumer exposure

Product characteristics:

Liquid concentrate, Powder formulation:
- Solid
Developer, fixing solution ready for use:
- Liquid

Amount used:

Not relevant

Addendum code: NPS3(0812)2

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EXPOSURE SCENARIOS ADDENDUM

Sodium Metabisulphite (Sodium Metabisulfite)

Dated 08-2012; version 2



Duration and frequency of use:	Pouring of liquid concentrate, Pouring of powder formulation: - < 15 min - 1 event / day
	Tank processing: - < 15 min - 2-4 cycle/day
	Tray processing of films: - ~ 10 min development time per cycle - 2-4 cycle/day
Concentration of substance in use:	10-20%
	Developer, fixing solution ready for use: - ≤ 10 %
Room volume:	Pouring of powder formulation: 10 m ³
	Not restricted for all other tasks.
Temperature:	Not restricted.
Other relevant operational conditions:	- Covers skin contact area up to 840 cm ² (both hands); - indoor use
	Pouring of powder formulation: - Covers skin contact area up to 4370 cm ² (upper extremities and face of adult); - indoor use.

Risk Management Measures that, in combination with the operational conditions of use, ensure control of risk

Organisational measures to prevent /limit releases, dispersion and exposure:	Wash hands after use.
	Avoid contact with eyes.
	Keep locked up and out of the reach of children.
	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
Conditions and measures related to personal protection, hygiene and health:	Wear goggles.

3. Exposure estimation (PEC) and Risk Characterisation Ratios (RCRs) estimated by applying above Operation Conditions (OCs) and Risk Management Measures (RMMs) are:

Environment – ERC 8b

Compartment	PEC (mg SO ₃ ²⁻ /L) based on EUSES 2.0	RCR
STP (freshwater)	0.16	< 0.01
STP (marine)	0.16	< 0.01
Local freshwater	16.4	0.01
Sediment freshwater	Not applicable	Not applicable
Local marine water	1.64	< 0.01
Sediment marine water	Not applicable	Not applicable
Local soil	Not applicable	Not applicable

Addendum code: NPS3(0812)2

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Man via the environment	Not applicable	Not applicable		
Due to the physicochemical properties of the substance (adsorption to solid particles not relevant, low stability and rapid oxidation of reduced inorganic sulfur compounds under aerobic conditions) no relevant PNECs can be derived for sediment, terrestrial and air compartment.				
Consumer – PC 30				
Since sodium metabisulfite is classified as irritating to eyes (eye dam.1) a qualitative assessment has been performed for exposure to the eye.				
Contributing Scenario	Eye Exposure Estimate Based on qualitative Risk assessment	Inhalation Exposure Estimate Based on qualitative or quantitative risk assessment (RCR)	Oral Exposure Estimate	Dermal Exposure Estimate
Pouring of liquid concentrate	If appropriate goggles are worn no exposure to the eyes needs to be expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during the task described. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.	Qualitative assessment has been conducted. Inhalation exposure is disregarded as no mists or aerosols are generated during these tasks and gaseous releases are low (indicated by the high water solubility and low vapour pressures of the pure substances).	Oral exposure does not occur as part of the intended product use.	No local effects are known after dermal exposure. Furthermore, dermal absorption is considered negligible and there are no data available which indicate systemic toxicity following this route. Thus, dermal exposure is not assessed in this exposure scenario.
Pouring of powder formulation	If risk reduction measures are taken into account no human exposure is expected. Dust from loading of the mixture cannot be excluded if no protective goggles are used. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.	Quantitative assessment has been conducted using the following equation: Inhalation exposure = $A * n * C / RV$ A = amount of dust released per task C = concentration in powder formulation (up to 20%) Small task: $2.4 \mu\text{g}/\text{m}^3$ ($2.4 * 10^{-4}$) Large task: $24 \mu\text{g}/\text{m}^3$ ($2.4 * 10^{-3}$)		
Tank processing	Potential exposure to the prepared solutions is only possible during filling and disposal. If appropriate goggles are worn no exposure to the eyes needs to be expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during filling and disposal. Prompt rinsing with water	Qualitative assessment has been conducted. Inhalation exposure is disregarded as no mists or aerosols are generated during these tasks and gaseous releases are low (indicated by the high water solubility and low vapour		

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	and seeking medical advice after accidental exposure is advisable.	pressures of the pure substances).		
Tray processing of films	If appropriate goggles are worn no exposure to the eyes needs to be expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during the task described. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.	Qualitative assessment has been conducted. Inhalation exposure is disregarded as no mists or aerosols are generated during these tasks and gaseous releases are low (indicated by the high water solubility and low vapour pressures of the pure substances).		

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES (in relation to potential for scaling) - adapting parameters of use of substance to individual conditions:

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

The Metal EUSES calculator for DUs can be freely downloaded from <http://www.archeconsulting.be/Metal-CSA-toolbox/du-scaling-tool>. The metal box can be left blank. 0 can be filled in for all partition coefficients and PECs regional.

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