

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 Version 6.6 Revision Date 10.12.2018

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

1.1 Product identifiers

Product name : Sulphuric acid 2M

Product Number : PRD5281

Brand : Better Equipped

Index-No. : 016-020-00-8

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.

CAS-No. : 7664-93-9

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : Not for sale to the general public

1.3 Details of the supplier of the safety data sheet

Company : Better Equipped,
Wrenbury Business Park,
Wrenbury Road,
Wrenbury,
Nantwich, Cheshire,
CW5 8EB, UK

Telephone +44 (0) 800 9707142

Fax +44 (0) 800 066 4443

E-mail address sales@betterequipped.co.uk

1.4 Emergency telephone number

Emergency Phone # +44 (0)1270 781238

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Corrosive to metals (Category 1), H290

Skin corrosion (Category 1A), H314

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

H290

H314

May be corrosive to metals.

Causes severe skin burns and eye damage.

Precautionary statement(s)

P260

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	H ₂ O ₄ S
Molecular weight	:	98.08 g/mol
CAS-No.	:	7664-93-9
EC-No.	:	231-639-5
Index-No.	:	016-020-00-8
Registration number	:	01-2119458838-20-XXXX

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Sulfuric acid		
CAS-No.	7664-93-9	Met. Corr. 1; Skin Corr. 1A; H290, H314 Concentration limits: ≥ 15 %: Skin Corr. 1A, H314; 5 - < 15 %: Skin Irrit. 2, H315; 5 - < 15 %: Eye Irrit. 2, H319; ≥ 1 %: Met. Corr. 1, H290;
EC-No.	231-639-5	
Index-No.	016-020-00-8	
Registration number	01-2119458838-20-XXXX	
		5 -15%

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

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Remove contaminated clothing. Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****- 6.1.1 For non-emergency personnel**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

- 6.1.2 For emergency responders

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Avoid inhalation of vapour or mist.

7.1.2 Advice on general occupational hygiene:

- No smoking.
- Do not eat or drink.
- Wash hands after use.
- Remove contaminated clothing.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	ValueForm of exposure	Control parameters	Basis
Sulfuric acid	7664-93-9	TWA (Thoracic fraction)	0.05 mg/m ³	UK. EH40 WEL - Workplace Exposure Limits
	Remarks	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used		
		TWA (Mist, thoracic fraction)	0.05 mg/m ³	UK. EH40 WEL - Workplace Exposure Limits
		Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used		
		TWA (Mist)	0.05 mg/m ³	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
		Indicative When selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds. The mist is defined as the thoracic fraction.		

8.1.2 Information on currently recommended monitoring procedures

For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)

8.1.3 The relevant DNELs and PNECs for the substance/s for the exposure scenarios:

DNEL's. The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole.

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Acute local effects	0.1 mg/m ³
Workers	Inhalation	Long-term local effects	0.05 mg/m ³

PNEC's. The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole.

Predicted No Effect Concentration (PNEC)

Compartment	Value
Marine water	0.00025 mg/l
Fresh water	0.0025 mg/l
Marine sediment	0.002 mg/kg
Fresh water sediment	0.002 mg/kg
Onsite sewage treatment plant	8.8 mg/l

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use Local exhaust ventilation (LEV).

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.2 mm

Break through time: 30 min

Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	1.2 at 5 g/l
e)	Melting point/freezing point	3 °C
f)	Initial boiling point and boiling range	290 °C - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	1.33 hPa at 145.8 °C
l)	Vapour density	3.39 - (Air = 1.0)
m)	Relative density	1.84 g/cm ³ at 25 °C
n)	Water solubility	soluble
o)	Partition coefficient: n- octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.1 Other safety information

Surface tension	55.1 mN/m at 20 °C
Relative vapour density	3.39 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with strong alkaline substances

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Material reacts with water

10.4 Conditions to avoid

Moisture, Heat and incompatible material.

10.5 Incompatible materials

Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates., Nitromethane, phosphorous, Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide, Powdered metals

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 2,140 mg/kg

LC50 Inhalation - Rat - 2 h - 510 mg/m³

Skin corrosion/irritation

Skin - Rabbit

Result: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive to eyes

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: WS5600000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 42 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates EC50 - *Daphnia magna* (Water flea) - 29 mg/l - 24 h

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

None known at present.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Unused product may be returned and reused, in addition to disposal.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2796

IMDG: 2796

IATA: 2796

14.2 UN proper shipping name

ADR/RID: SULPHURIC ACID

IMDG: SULPHURIC ACID

IATA: Sulphuric acid

14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

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

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

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

Revisions made since previous version of data sheet:

The following sections of this data sheet have been updated:

1.1, 1.2, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, 11, 12, 13, 14.7, 16

We strongly recommend reading the entire data sheet for this chemical in preparation ahead of use.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Better Equipped and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Annex: Exposure scenario

Identified uses:

Use: Used as chemical intermediate

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 3, SU9: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of fine chemicals
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent
ERC1: Manufacture of substances

Use: Formulation of preparations

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
PROC1: Use in closed process, no likelihood of exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
ERC2: Formulation of preparations

Use: Used as laboratory reagent

SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU 3, SU 22, SU24: Industrial uses: Uses of substances as such or in preparations at industrial sites, Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Scientific research and development
PC21: Laboratory chemicals
PROC15: Use as laboratory reagent
ERC4, ERC6a: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in manufacture of another substance (use of intermediates)

Use: Used as chemical intermediate

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 3, SU9: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of fine chemicals
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent
ERC1: Manufacture of substances

Use: Formulation of preparations

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

PROC1: Use in closed process, no likelihood of exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
ERC2: Formulation of preparations

Use: Used as laboratory reagent

SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU 3, SU 22, SU24: Industrial uses: Uses of substances as such or in preparations at industrial sites, Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Scientific research and development
PC21: Laboratory chemicals
PROC15: Use as laboratory reagent
ERC4, ERC6a: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in manufacture of another substance (use of intermediates)

1. Short title of Exposure Scenario: Used as chemical intermediate

Main User Groups	: SU 3
Sectors of end-use	: SU 3, SU9
Process categories	: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC15
Environmental Release Categories	: ERC1:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC1

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h

Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3

(Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC2	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC3	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0004 mg/m ³	0.008
PROC4	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.014 mg/m ³	0.28
PROC8b	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC9	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.003 mg/m ³	0.06
PROC15	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0002 mg/m ³	0.004

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Formulation of preparations

Main User Groups : **SU 3**
 Sectors of end-use : **SU 10**
 Process categories : **PROC1, PROC3, PROC5, PROC8b, PROC9**
 Environmental Release Categories : **ERC2:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC3, PROC5, PROC8b, PROC9

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h

Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC3	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0004 mg/m ³	0.008
PROC5	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.018 mg/m ³	0.36
PROC8b	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC9	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.003 mg/m ³	0.06

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Used as laboratory reagent

Main User Groups : SU 22
 Sectors of end-use : SU 3, SU 22, SU24
 Chemical product category : PC21
 Process categories : PROC15
 Environmental Release Categories : ERC4, ERC6a:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6a

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC15, PC21

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h

Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0002 mg/m ³	0.004

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Used as chemical intermediate

Main User Groups : SU 3
 Sectors of end-use : SU 3, SU9
 Process categories : PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC15
 Environmental Release Categories : ERC1:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC1

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to

Mixture/Article

100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h
 Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC2	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC3	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0004 mg/m ³	0.008
PROC4	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.014 mg/m ³	0.28
PROC8b	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC9	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.003 mg/m ³	0.06
PROC15	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0002 mg/m ³	0.004

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Formulation of preparations

Main User Groups : SU 3
 Sectors of end-use : SU 10
 Process categories : PROC1, PROC3, PROC5, PROC8b, PROC9
 Environmental Release Categories : ERC2:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC3, PROC5, PROC8b, PROC9

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h
 Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC3	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0004 mg/m ³	0.008
PROC5	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.018 mg/m ³	0.36

PROC8b	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0 mg/m ³	0
PROC9	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.003 mg/m ³	0.06

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Used as laboratory reagent

Main User Groups : SU 22
 Sectors of end-use : SU 3, SU 22, SU24
 Chemical product category : PC21
 Process categories : PROC15
 Environmental Release Categories : ERC4, ERC6a:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6a

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

2.2 Contributing scenario controlling worker exposure for: PROC15, PC21

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Application duration : > 4 h
 Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Use only in area provided with appropriate exhaust ventilation., Good work practice required.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection and gloves., For personal protection see section 8.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing	Exposure	Specific	Value	Level of	RCR*
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Scenario	Assessment Method	conditions		Exposure	
PROC15	ECETOC TRA	With Local Exhaust Ventilation	Inhalation	0.0002 mg/m ³	0.004

*Risk characterisation ratio

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

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).
