

SAFETY DATA SHEET

Based upon Regulation (EC) No. 1907/2006, as amended by Regulation (EC) No. 453/2010

Solupotasse[®]

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

1.1 Product identifier:

Product name : Solupotasse®

: potassium sulfate, soluble grade Synonyms Registration number REACH : 01-2119489441-34-0000

Product type REACH : Substance/mono-constituent (Inorganic)

: 7778-80-5 **CAS** number : 231-915-5 FC number **RTECS** number : TT5900000 Molecular mass : 174.26 g/mol Formula : K2SO4

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

1.2.1 Relevant identified uses

Fertiliser: EC FERTILISER

1.2.2 Uses advised against

No uses advised against

1.3 Details of the supplier of the safety data sheet:

Supplier of the safety data sheet

TESSENDERLO CHEMIE N.V. Troonstraat 130 B-1050 Brussel Tel: +32 13 61 22 11 Fax: +32 13 67 37 49

Manufacturer of the product

Tessenderlo Chemie N.V. (TCH) Bergstraat 32 B-3945 Ham Tel: +32 13 61 12 11 Fax: +32 13 61 12 32 sds.responsible@tessenderlo.com

1.4 Emergency telephone number:

24h/24h (Telephone advice: English, French, German, Dutch): +32 14 58 45 45 (BIG)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:

2.1.1 Classification according to Regulation EC No 1272/2008

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statement code(s)
Eye Dam.	category 1	H318: Causes serious eye damage.

2.1.2 Classification according to Directive 67/548/EEC-1999/45/EC

Classified as dangerous in accordance with the criteria of Directives 67/548/EEC and 1999/45/EC

Xi; R41 - Risk of serious damage to eyes.

2.2 Label elements:

Labelling according to Regulation EC No 1272/2008 (CLP)

Hazard pictograms

Created by: Brandweerinformatiecentrum voor gevaarlijke stoffen vzw (BIG)

Technische Schoolstraat 43 A, B-2440 Geel

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Revision number: 0100

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Reference number:

Product number: 52123



Signal word Danger

H-statements

H318 Causes serious eye damage.

P-statements

P280 Wear eye protection/face protection.

P310 Immediately call a POISON CENTER or doctor/physician.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards:

SECTION 3: Composition/information on ingredients

3.1 Substances:

Name (REACH Registration No)	CAS No EC No	Conc. (C)	Classification according to DSD/DPD	Classification according to CLP	Note	Remark
potassium sulfate (-)	7778-80-5 231-915-5	C>85%			(2)	Constituent
potassium hydrogensulphate (-)			*	Skin Corr. 1B; H314 STOT SE 3; H335	(1)	Impurity

⁽¹⁾ For R-phrases and H-statements in full: see heading 16

3.2 Mixtures:

Not applicable

SECTION 4: First aid measures

4.1 Description of first aid measures:

General:

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

After inhalation:

Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

After skin contact:

Wash with water and soap. Take victim to a doctor if irritation persists.

After eye contact:

Rinse immediately with plenty of water for 15 minutes. (remove any contact lenses if possible). Do not apply neutralizing agents. Take victim to an ophthalmologist.

After ingestion:

Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Victim is fully conscious: immediately induce vomiting. Consult a doctor/medical service if you feel unwell.

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

4.2.1 Acute symptoms

After inhalation:

AFTER INHALATION OF DUST: Coughing.

After skin contact:

Slight irritation.

After eye contact:

Irritation of the eye tissue. Inflammation/damage of the eye tissue. Redness of the eye tissue.

After ingestion

AFTER ABSORPTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Diarrhoea. Irritation of the gastric/intestinal mucosa. Decreased renal function. Disturbances of heart rate.

4.2.2 Delayed symptoms

No effects known

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

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⁽²⁾ Substance with a Community workplace exposure limit

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1 Extinguishing media:

5.1.1 Suitable extinguishing media:

Adapt extinguishing media to the environment.

5.1.2 Unsuitable extinguishing media:

No unsuitable extinguishing media known.

5.2 Special hazards arising from the substance or mixture:

On burning: release of toxic and corrosive gases/vapours (sulphur oxides).

5.3 Advice for firefighters:

5.3.1 Instructions:

Dilute toxic gases with water spray.

5.3.2 Special protective equipment for fire-fighters:

Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Prevent dust cloud formation, e.g. by wetting. No naked flames.

6.1.1 Protective equipment for non-emergency personnel

See heading 8.2

6.1.2 Protective equipment for emergency responders

Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.

Suitable protective clothing

See heading 8.2

6.2 Environmental precautions:

Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.

6.3 Methods and material for containment and cleaning up:

Stop dust cloud by humidifying. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4 Reference to other sections:

See heading 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1 Precautions for safe handling:

Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed.

7.2 Conditions for safe storage, including any incompatibilities:

7.2.1 Safe storage requirements:

Store in a dry area. Store at room temperature. Keep container in a well-ventilated place. Meet the legal requirements.

7.2.2 Keep away from:

Heat sources.

7.2.3 Suitable packaging material:

Polyethylene.

7.2.4 Non suitable packaging material:

Aluminium, metal.

7.3 Specific end use(s):

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer .

SECTION 8: Exposure controls/personal protection

8.1 Control parameters:

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

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Indicative exposure limit (the Netherlands)

Stof (inhaleerbaar)	Time-weighted average exposure limit 8 h	10 mg/m³	inhalable
Stof (respirabel)	Time-weighted average exposure limit 8 h	5 mg/m³	respirable

Limit Value (Belgium)

Particules non classifiées autrement (fraction alvéolaire)	Short time value	- ppm - mg/m³	
	Time-weighted average exposure limit 8 h	- ppm 3 mg/m³	
Particules non classifiées autrement (fraction inhalable)	Short time value	- ppm - mg/m³	
	Time-weighted average exposure limit 8 h	- ppm 10 mg/m³	

TRGS 900 (Germany)

Allgemeiner Staubgrenzwert:	Time-weighted average exposure limit 8 h	3 mg/m³	
Alveolengängige Fraktion			

Limit Value (France)

Poussières réputées sans effet spécifique		- ppm - mg/m³	
	Time-weighted average exposure limit 8 h	- ppm 5 A/10 T mg/m³	

Limit Value (UK)

Dust of any kind	Short time value	- ppm - mg/m³	
	Time-weighted average exposure limit 8 h	- ppm 4 R/10 I mg/m³	

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
Sulfites, & Sulfates	NIOSH	6004
Potassium	OSHA	ID 121

$\bf 8.1.3$ Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 DNEL/PNEC values

Workers

potassium sulfate

Effect level (DNEL/DMEL)	Туре	Value	Remark
DNEL	Long-term systemic effects dermal	21.3 mg/kg bw/day	
	Long-term systemic effects inhalation	37.6 mg/m³	

General population

potassium sulfate

Effect level (DNEL/DMEL)	Туре	Value	Remark
DNEL	Long-term systemic effects oral	12.8 mg/kg bw/day	
	Long-term systemic effects dermal	12.8 mg/kg bw/day	
	Long-term systemic effects inhalation	11.1 mg/m³	

PNEC

potassium sulfate

Compartments	Value	Remark
Fresh water	0.68 mg/l	
Marine water	0.068 mg/l	
aqua (intermittent releases)	6.8 mg/l	
STP	10 mg/l	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2 Exposure controls:

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8.2.1 Appropriate engineering controls

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Avoid raising dust. Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

${\bf 8.2.2\ Individual\ protection\ measures,\ such\ as\ personal\ protective\ equipment}$

Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke during work.

a) Respiratory protection:

Dust production: dust mask with filter type P1.

b) Hand protection:

Gloves.

- materials for protective clothing (good resistance)

Rubber.

c) Eye protection:

Safety glasses. In case of dust production: protective goggles.

d) Skin protection:

Protective clothing.

8.2.3 Environmental exposure controls:

See headings 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Physical form	Crystalline solid
	Powder
Odour	Odourless
Odour threshold	Not applicable
Colour	Colourless to white
Particle size	135 μm
Explosion limits	Not applicable
Flammability	Non-flammable
Log Kow	Not applicable
Dynamic viscosity	No data available
Kinematic viscosity	No data available
Melting point	1067 °C ; Literature
Boiling point	1689 °C ; Literature
Flash point	Not applicable
Evaporation rate	No data available
Vapour pressure	Not applicable
Relative vapour density	Not applicable
Solubility	water ; soluble
Relative density	No data available
Decomposition temperature	No data available
Auto-ignition temperature	Not applicable
Explosive properties	No chemical group associated with explosive properties
Oxidising properties	No chemical group associated with oxidising properties
рН	No data available

Physical hazards

No physical hazard class

9.2 Other information:

Minimum ignition energy	Not applicable
SADT	Not applicable
Absolute density	1210 kg/m³

SECTION 10: Stability and reactivity

10.1 Reactivity:

Substance has acid reaction.

10.2 Chemical stability:

Stable under normal conditions.

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10.3 Possibility of hazardous reactions:

In molten state: reacts violently with (some) metals.

10.4 Conditions to avoid:

Avoid raising dust. Keep away from naked flames/heat.

10.5 Incompatible materials:

Aluminium, metal.

10.6 Hazardous decomposition products:

On burning: release of toxic and corrosive gases/vapours (sulphur oxides).

SECTION 11: Toxicological information

11.1 Information on toxicological effects:

11.1.1 Test results

Acute toxicity

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No (test)data available

potassium sulfate

Route of exposure	Parameter	Method	Value	Exposure time	Species		Value determination
Oral	LD50	OECD 425	>2000 mg/kg bw		Rat	Male/female	Read-across
Dermal	LD50	OECD 402	>2000 mg/kg bw		Rat	Male/female	Experimental value
Inhalation	LC50		>1.2 mg/l	4 h	Rat		Read-across

potassium hydrogensulphate

Route of exposure	Parameter	Method	Value	Exposure time	Species	 Value determination
Oral	LD50		2340 mg/kg		Rat	

Conclusion

Not classified for acute toxicity

Corrosion/irritation

Solupotasse®

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination
' -	Serious eye damage	OECD 437				Experimental value
	_ ŭ	EU Method B.46				Experimental value

potassium sulfate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination
Eve	Not irritating	OFCD 405		24: 48: 72 hours	Rahhit	Experimental value

Conclusion

Causes serious eye damage.

Respiratory or skin sensitisation

Solupotasse®

No (test)data available

potassium sulfate

Route of exposure	Result	Method	 Observation time point	Species		Value determination
Dermal	Not sensitizing	OECD 429		Mouse	Female	Read-across

Conclusion

Not sensitizing for skin

Specific target organ toxicity

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No (test)data available

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potassium sulfate

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species		Value determination
Oral	NOAEL	OECD 422	>= 1500 mg/kg bw/day		No adverse systemic effects	28 day(s)	Rat	l '	Experimental value
Oral	NOAEL	OECD 453	256 mg/kg bw/day		No adverse systemic effects	52 week(s)	Rat	Male	Read-across
Oral	NOAEL	OECD 453	284 mg/kg bw/day		No adverse systemic effects	52 week(s)	Rat	Female	Read-across

Conclusion

Low sub-chronic toxicity by the oral route

Mutagenicity (in vitro)

Solupotasse®

No (test)data available

potassium sulfate

Result	Method	Test substrate	Effect	Value determination
Negative	OECD 473	Chinese hamster ovary (CHO)		Experimental value
Negative		Mouse (lymphoma L5178Y cells)		Read-across

Mutagenicity (in vivo)

Solupotasse®

No (test)data available

potassium sulfate

Result	Method	Exposure time	Test substrate	Gender	Organ	Value determination
Negative	OECD 471		Bacteria			Experimental value
			(S.typhimurium)			
Negative	OECD 471		Bacteria (E. coli)			Experimental value

Carcinogenicity

<u>Solupotasse®</u>

No (test)data available

potassium sulfate

	Parameter	Method	Value	Exposure time	Species	Gender	Value	Organ	Effect
							determination		
Oral		Equivalent to		104 week(s)	Rat	Male/female	Read-across		No adverse
		OECD 453							systemic
									effects

Reproductive toxicity

Solupotasse®

No (test)data available

potassium sulfate

	Parameter	Method	Value	Exposure time	Species	Gender	Effect	1- 0-	Value determination
Developmental toxicity	NOAEL	OECD 422	>=1500 mg/kg bw/day	28 day(s)	Rat	Male	No adverse systemic effects		Experimental value
	NOAEL	OECD 422	>=1500 mg/kg bw/day	53 day(s)	Rat	Female	No adverse systemic effects		Experimental value
Effects on fertility	NOAEL	OECD 422	>=1500 mg/kg bw/day	28 day(s)	Rat	1	No adverse systemic effects		Experimental value

Conclusion CMR

Not classified for mutagenic or genotoxic toxicity

Not classified for carcinogenicity

Toxicity to reproduction is unlikely to be significant

Toxicity other effects

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No (test)data available

SECTION 12: Ecological information

12.1 Toxicity:

Solupotasse®

No (test)data available

potassium sulfate

<u>otassium sunate</u>					1			
	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	EPA 600/4- 90/027	680 mg/l	96 h	Pimephales promelas	Static system	Fresh water	Experimental value
Acute toxicity invertebrates	LC50	EPA 600/4- 90/027	720 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value
Toxicity algae and other aquatic plants	EC50	Other	2700 mg/l	18 day(s)	Chlorella vulgaris	Static system	Fresh water	Read-across
Toxicity aquatic micro- organisms	EC50		> 100 mg/l		Bacteria			Weight of evidence
	NOEC		100 mg/l		Bacteria			Weight of evidence

potassium hydrogensulphate

	Parameter	Method	Value	Duration	Species	 Fresh/salt water	Value determination
Acute toxicity fishes	LC50		3500 mg/l		Leuciscus idus		

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2 Persistence and degradability:

Biodegradability: not applicable

12.3 Bioaccumulative potential:

<u>Solupotasse®</u>

Log Kow

Method	Value	Temperature	Value determination
			Not applicable

potassium sulfate

Log Kow

Method	Value	Temperature	Value determination
			Not applicable

Conclusion

Bioaccumulation: not applicable

12.4 Mobility in soil:

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Low potential for absorption in soil

12.5 Results of PBT and vPvB assessment:

Substance does not meet the screening criteria for persistency nor bioaccumulation so is neither PBT nor vPvB.

12.6 Other adverse effects:

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Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No. 1272/2008 and 1005/2009)

potassium sulfate

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No. 1272/2008 and 1005/2009)

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potassium hydrogensulphate

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No. 1272/2008 and 1005/2009)

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1 Waste treatment methods:

13.1.1 Provisions relating to waste

06 03 14 (solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13). Depending on branch of industry and production process, also other EURAL codes may be applicable. Hazardous waste according to Directive 2008/98/EC. Can be considered as non hazardous waste according to Directive 2008/98/EC.

13.1.2 Disposal methods

Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I). Remove waste in accordance with local and/or national regulations.

13.1.3 Packaging/Container

Waste material code packaging (Directive 2008/98/EC).

15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)	
14.1 UN number:	Man audia da
Transport	Not subject
UN number	
14.2 UN proper shipping name:	
14.3 Transport hazard class(es):	
Hazard identification number Class	
Classification code	
14.4 Packing group:	
Packing group	
Labels	
14.5 Environmental hazards:	
Environmentally hazardous substance mark	no
14.6 Special precautions for user:	
Special provisions	
Limited quantities	
aail (RID) 14.1 UN number:	la constant
Transport	Not subject
UN number	
14.2 UN proper shipping name:	
14.3 Transport hazard class(es):	
Hazard identification number	
Class	
Classification code	
14.4 Packing group:	
Packing group	
Labels	
14.5 Environmental hazards:	
Environmentally hazardous substance mark	no
14.6 Special precautions for user:	
Special provisions	
Limited quantities	
nland waterways (ADN)	
14.1 UN number:	
Transport	Not subject
UN number	
14.2 UN proper shipping name:	
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Solupotasse® 14.3 Transport hazard class(es): Class Classification code 14.4 Packing group: Packing group Labels 14.5 Environmental hazards: Environmentally hazardous substance mark no 14.6 Special precautions for user: Special provisions Limited quantities Sea (IMDG) 14.1 UN number: Transport Not subject UN number 14.2 UN proper shipping name: 14.3 Transport hazard class(es): Class 14.4 Packing group: Packing group Labels 14.5 Environmental hazards: Marine pollutant Environmentally hazardous substance mark lno 14.6 Special precautions for user: Special provisions Limited quantities 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Annex II of MARPOL 73/78 Air (ICAO-TI/IATA-DGR) 14.1 UN number: Transport Not subject UN number 14.2 UN proper shipping name: 14.3 Transport hazard class(es): Class 14.4 Packing group: Packing group Labels 14.5 Environmental hazards: Environmentally hazardous substance mark no 14.6 Special precautions for user: Special provisions Passenger and cargo transport: limited quantities: maximum net quantity per packaging

SECTION 15: Regulatory information

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

European legislation:

European drinking water standards

Maximum concentration in drinking water: 250 mg/l (sulfate) (Directive 98/83/EC)

Volatile organic compounds (VOC)

Not applicable

National legislation

- The Netherlands

Waterbezwaarlijkheid (for NL)	12
Waste identification other lists of waste materials	LWCA (the Netherlands): KGA category 05

- Germany

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WGK	1	Classification water polluting based on the components
		in compliance with Verwaltungsvorschrift
		wassergefährdender Stoffe (VwVwS) of 27 July 2005
		(Anhang 4)

15.2 Chemical safety assessment:

A chemical safety assessment has been performed.

SECTION 16: Other information

Labelling according to Directive 67/548/EEC-1999/45/EC (DSD/DPD)

On grounds of experience and test data, the classification for this preparation is less stringent than the one imposed by the criteria of the conventional method referred to in Directive 1999/45/EC

Labels



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R-phrases

Risk of serious damage to eyes

S-phrases

(02) (Keep out of the reach of children)

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

39 Wear eye/face protection

(46) (If swallowed, seek medical advice immediately and show this container or label)

Full text of any R-phrases referred to under headings 2 and 3:

R41 Risk of serious damage to eyes

R34 Causes burns

R37 Irritating to respiratory system

Full text of any H-statements referred to under headings 2 and 3:

H318 Causes serious eye damage.

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

(*) = INTERNAL CLASSIFICATION BY BIG

PBT-substances = persistent, bioaccumulative and toxic substances

DSD Dangerous Substance Directive
DPD Dangerous Preparation Directive

CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult your BIG licence agreement for details.

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