

### Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

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

#### **1.1 Product identifier**

#### **Product information**

Product Name	:	Sulfole® 120B Mercaptan
Material	:	1116064, 1108796, 1105436, 1101538, 1101537

#### **EC-No.Registration number**

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
tert-Dodecanethiol	25103-58-6 246-619-1	Chevron Phillips Chemicals International NV 01-2119486132-42-0002
tert-Dodecanethiol 25103-58-6 246-619-1		Chevron Phillips Chemical Company LP 01-2119486132-42-0005

#### 1

1.2	Relevant identified uses of the substance or mixture and uses advised against					
	Relevant Identified Uses : Supported	Manufacture Formulation Use in polymer processing –industrial Lubricants - Industrial Use in mining – industrial				
1.3						
	Details of the supplier of the safety data sheet					
	Company :	Chevron Phillips Chemical Company LP Specialty Chemicals 10001 Six Pines Drive The Woodlands, TX 77380				
	Local :	Chevron Phillips Chemicals International N.V. Airport Plaza (Stockholm Building) Leonardo Da Vincilaan 19 1831 Diegem Belgium				
SDS	S Number:100000014573	1/52				

## Sulfole® 120B Mercaptan

Version 5.9

9

SDS Requests: (800) 852-5530 Responsible Party: Product Safety Group Email:sds@cpchem.com
4 Emergency telephone:
Health: 866.442.9628 (North America) 1.832.813.4984 (International) Transport: CHEMTREC 600.424.9300 or 703.527.3887(int!) Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090 Mexico CHEMTREC 01-800-681-9531 (24 hours) South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600 Argentina: +(54)-1159839431 EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week) Belgium: 070 245 245 (24 hours/day, 7 days/week) Bulgaria: +358 9 154 233 Croatia: +3851 2348 342 (24 hours/day, 7 days/week) Cyprus: 1401 Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402 Denmark: Danish Poison Center (Gifflinjen): +45 8212 1212 Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Finland: 0800 147 111 09 471 977 (24 hours/day) France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week) Gereany: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Finland: 0800 147 111 09 471 977 (24 hours/day, 7 days/week) Hungary: +36-80-201-199 (24 hours/day, 7 days/week) Iceland: 543 2222 (24 hours/day, 7 days/week) Iceland: 543 2222 (24 hours/day, 7 days/week) Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Itihuania: +370 (85) 236202 Luxembourg: (+352 8002 5500 (24 hours/day, 7 days/week) Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax) Poland: Hours, 112 (0)88 755 8000 Norway: 22 59 13 00 (24 hours/day, 7 days/week) Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Responsible Department:Product Safety and Toxicology GroupE-mail address:SDS@CPChem.comWebsite:www.CPChem.com
DS Number:100000014573 2/52

Version 5.9

Revision Date 2023-08-14

SAFETY DATA SHEET

### SECTION 2: Hazards identification

#### 2.1

# Classification of the substance or mixture REGULATION (EC) No 1272/2008

	REGULATION (EC) No 1272/2	800				
	Skin irritation, Category 2		H315: Causes skin irritation.			
	Eye irritation, Category 2		H319:			
	Skin sensitization, Category 1		Causes serious eye irritation. H317: May cause an allergic skin reaction. H413: May cause long lasting harmful effects to aquatic life.			
	Long-term (chronic) aquatic haz Category 4	ard,				
2.2	Labeling (REGULATION (EC)	No 1272/200	98)			
	Hazard pictograms :					
			•			
	Signal Word :	Warning				
	Hazard Statements :	H315 H317 H319 H413	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause long lasting harmful effects to aquatic life.			
	Precautionary Statements :	Prevention P261 P264	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. Wash skin thoroughly after handling.			
		P273 P280	Avoid release to the environment. Wear protective gloves/ eye protection/ face protection.			
		Response				
		P333 + P3	13 If skin irritation or rash occurs: Get medical advice/ attention.			
		P337 + P3	13 If eye irritation persists: Get medical advice/ attention.			
	Hazardous ingredients which m • 25103-58-6 tert-Do	ust be listed decanethiol	on the label:			
2.3	Other hazards					

su	Ifole® 120B Mer	captan	)		SA	FETY DATA SHE
	sion 5.9				Revis	sion Date 2023-08-
	Results of PBT and vP assessment	be eit		substance/mixture conta ther persistent, bioaccun stent and very bioaccum gher.	nulative and toxi	c (PBT), or very
	Endocrine disrupting properties	:	cons to RI (EU)	substance/mixture does idered to have endocrine EACH Article 57(f) or Co 2017/2100 or Commiss s of 0.1% or higher.	e disrupting prop mmission Delega	erties according ated regulation
<b>SEC</b>	CTION 3: Composition/i	nformati	on on	ingredients		
	- <b>3.2</b> stance or Mixture Synonyms Molecular formula	:	TDM Tertia C12F	ary Dodecyl Mercaptan		
	Hazardous ingredients	:	CIZE	1203		
	Chemical name	CAS-I EC-N Index	lo.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
	tert-Dodecanethiol	25103-5 246-619	8-6	Skin Irrit. 2; H315 Skin Sens. 1B; H317 Aquatic Chronic 4; H413	98 - 100	
	For the full text of the H	-Stateme	nts me	entioned in this Section,	see Section 16.	
SEC	TION 4: First aid meas	ures				
.1	Description of first-aid	d measur	es			
	General advice	:	sheet	out of dangerous area. to the doctor in attenda us, potentially fatal pneur	nce. Material ma	ay produce a
	If inhaled	:		onscious, place in recov e. If symptoms persist, o		seek medical
	In case of skin contact	:		n irritation persists, call a vater. If on clothes, rem		skin, rinse well
	In case of eye contact	:	lense	ediately flush eye(s) with s. Protect unharmed ey g. If eye irritation persis	e. Keep eye wid	le open while
	If swallowed	:	bever perso	respiratory tract clear. I ages. Never give anyth on. If symptoms persist, diately to hospital.	ing by mouth to a	an unconscious

Su	Ifole® 120B Mercap	tar	SAFETY DATA SHEET
	sion 5.9		Revision Date 2023-08-14
	Notes to physician		
	Symptoms	:	No data available.
4.3	Risks Indication of any immediat	: e m	No data available. edical attention and special treatment needed
	Treatment	:	No data available.
SEC	CTION 5: Firefighting measu	ires	
	Flash point	:	92°C (198°F) Method: Tag closed cup
	Autoignition temperature	:	No data available
5.1	Extinguishing media		
	Suitable extinguishing media	:	Carbon dioxide (CO2).
	Unsuitable extinguishing media	:	High volume water jet.
5.2	Special hazards arising fro Specific hazards during fire fighting		he substance or mixture Do not allow run-off from fire fighting to enter drains or water courses.
5.3	Advice for firefighters Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
	Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
	Fire and explosion protection	:	Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
	Hazardous decomposition products	:	Carbon oxides. Sulfur oxides.
SEC	CTION 6: Accidental release	me	asures
6.1	Personal precautions, pro	tecti	ive equipment and emergency procedures
	Personal precautions		Use personal protective equipment. Ensure adequate ventilation.
6.2	Environmental precautions	5	
	S Number:100000014573		

Su	Ifole® 120B Mercap	tar	SAFETY DATA SHEE
	rsion 5.9	u	Revision Date 2023-08-1
	Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
5.3			
	Methods and materials for Methods for cleaning up	cor :	Attainment and cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.
6.4	Reference to other section	s	
	Reference to other sections	:	For personal protection see section 8. For disposal considerations see section 13.
SEC	CTION 7: Handling and stora	ige	
7.1	Precautions for safe handl Handling	ing	
	Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
	Advice on protection against fire and explosion	:	Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
7.2	Conditions for safe storage	e, in	cluding any incompatibilities
	Storage		
	Requirements for storage areas and containers	:	No smoking. Keep in a well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
7.3	<b>Specific End Use</b> Use	:	For additional details, see the Exposure Scenario in the Annex portion
SEC	CTION 8: Exposure controls/	/per	sonal protection
	S Number:100000014573		6/52

SAFETY DATA SHEET

Revision Date 2023-08-14

Version 5.9

#### 8.1

### **Control parameters**

Components	Basis	Value	Control parameters	Note
ert-Dodecanethiol	Manufactu	urer TWA	0,1 ppm,	
DNEL	F	and Use: Workers Routes of exposure: I Potential health effect Value: 0,5 mg/m3	nhalation s: Long-term systemic e	ffects
DNEL	F	and Use: Workers Routes of exposure: S Potential health effect Value: 1,7 mg/kg	Skin contact s: Long-term systemic e	ffects
DNEL	F	and Use: Workers Routes of exposure: S Potential health effect Value: 0,665 mg/cm2	s: Acute effects	
DNEL	F	and Use: Consumers Routes of exposure: I Potential health effect Value: 0,09 mg/m3		ffects
DNEL	F	and Use: Consumers Routes of exposure: I Potential health effect alue: 0,08 mg/kg		ffects
PNEC		resh water sediment /alue: 3 mg/kg	:	
PNEC		larine sediment 'alue: 0,3 mg/kg		

#### 8.2

#### Exposure controls Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

#### Personal protective equipment

Respiratory protection :	If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. A positive
SDS Number:100000014573	7/52

Gulfole® 120B Mercap Version 5.9	Revision Date 2023-08-
	pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air- purifying respirators may not provide adequate protection.
Hand protection	: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	: Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant protective clothing. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.
	he Exposure Scenario in the Annex portion mical properties
ECTION 9: Physical and cher	· · ·
ECTION 9: Physical and cher	mical properties
ECTION 9: Physical and cher 1 Information on basic phys	mical properties
ECTION 9: Physical and cher 1 Information on basic physical Appearance Form Physical state Color	mical properties sical and chemical properties : liquid : liquid : Colorless
ECTION 9: Physical and cher 1 Information on basic physical Appearance Form Physical state Color Odor	mical properties sical and chemical properties : liquid : liquid : Colorless
ECTION 9: Physical and cher I Information on basic physical Appearance Form Physical state Color Odor Safety data	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F)
1         Information on basic physical and cher         Appearance         Form         Physical state         Color         Odor         Safety data         Flash point	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup
1         Information on basic physical and cher         Appearance         Form         Physical state         Color         Odor         Safety data         Flash point         Lower explosion limit	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup : No data available
ECTION 9: Physical and cher         1         Information on basic physical state         Appearance         Form         Physical state         Color         Odor         Safety data         Flash point         Lower explosion limit         Upper explosion limit	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup : No data available : No data available
ECTION 9: Physical and cher         1         Information on basic physical state         Appearance         Form         Physical state         Color         Odor         Safety data         Flash point         Lower explosion limit         Upper explosion limit         Oxidizing properties	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup : No data available : No data available : no
ECTION 9: Physical and cher         1         Information on basic physical state         Form         Physical state         Color         Odor         Safety data         Flash point         Lower explosion limit         Upper explosion limit         Oxidizing properties         Autoignition temperature	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup : No data available : No data available : no : No data available
ECTION 9: Physical and cher         1         Information on basic physical state         Form         Physical state         Color         Odor         Safety data         Flash point         Lower explosion limit         Upper explosion limit         Oxidizing properties         Autoignition temperature         Molecular formula	mical properties sical and chemical properties : liquid : liquid : Colorless : Repulsive : 92°C (198°F) Method: Tag closed cup : No data available : No data available : no : No data available : c12H26S

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SAFETY	DATA	SUEEI

Revision Date 2023-08-
: No data available
: 234°C (453°F)
: 4,00 Pa at 24°C (75°F)
: 0,8664 at 16 °C (61 °F)
: 0,9 g/cm3
: 0,00393 mg/l Method: OECD Test Guideline 105
: No data available
: 4 mPa.s
: 3 (Air = 1.0)
: 1
: > 99 %
: Not available
tivity
: Stable under recommended storage conditions.
: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
actions
: Hazardous reactions: Hazardous polymerization does not occur.
occur. Hazardous reactions: Vapors may form explosive mixture with

Sulfale® 1208 Marcant	SAFETY DATA SHEET
Sulfole® 120B Mercapt Version 5.9	Revision Date 2023-08-14
10.5	
Materials to avoid	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
10.6 Hazardous decomposition products	: Carbon oxides Sulfur oxides
Other data	: No decomposition if stored and applied as directed.
SECTION 11: Toxicological infor	mation
11.1	
Information on toxicologica	Terrects
Acute oral toxicity	
tert-Dodecanethiol	: LD50: > 2.000 mg/kg Species: Rat Sex: female Method: OECD Test Guideline 423
Acute inhalation toxicity	
tert-Dodecanethiol	<ul> <li>LC50: &gt; 1,97 mg/l Exposure time: 4 h Species: Rat Sex: male and female Test atmosphere: vapor Method: OECD Test Guideline 403 Information given is based on data obtained from similar substances.</li> </ul>
Acute dermal toxicity	
tert-Dodecanethiol	<ul> <li>LD50: &gt; 2.000 mg/kg</li> <li>Species: Rat</li> <li>Sex: male</li> <li>Method: OECD Test Guideline 402</li> <li>Information given is based on data obtained from similar substances.</li> </ul>
Skin irritation	
tert-Dodecanethiol	: Skin irritation
Eye irritation tert-Dodecanethiol	: No eye irritation
Sensitization	
tert-Dodecanethiol	: The product is a skin sensitizer, sub-category 1B.
Repeated dose toxicity	
SDS Number:100000014573	10/52

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Sulfole® 120B Merca	SAFETY DATA SHEET
Sulfole® 120B Merca Version 5.9 tert-Dodecanethiol	ptan
SDS Number:100000014573	11/52

Version 5.9

	Species: Rat, female Sex: female Application Route: Inhalation Dose: 0, 26, 98 ppm Exposure time: 4 wk
	Number of exposures: 6 h/d, 5 d/wk NOEL: 26 ppm Method: OECD Guideline 412 Target Organs: Liver, Kidney
	Species: Dog, male and female Sex: male and female Application Route: Inhalation Dose: 0, 25, 106 ppm Exposure time: 4 wk Number of exposures: 6 h/d, 5 d/wk NOEL: 25 ppm Lowest observable effect level: 109 ppm Method: OECD Test Guideline 412 Target Organs: Liver
	Species: Mouse, male and female Sex: male and female Application Route: Inhalation Dose: 0, 25, 109 ppm Exposure time: 4 wk Number of exposures: 6 h/d, 5 d/wk Lowest observable effect level: 25 ppm
	Method: OECD Test Guideline 412 Target Organs: Liver Species: Rat, male Sex: male
	Application Route: oral gavage Dose: 50, 100, 200 mg/kg Exposure time: 10 wk Number of exposures: once daily NOEL: 200 mg/kg Method: OECD Guideline 422 Target Organs: Kidney, Liver
	Species: Rat, female Sex: female Application Route: oral gavage Dose: 50, 100, 200 mg/kg
	Exposure time: 8 - 9 wk Number of exposures: once daily NOEL: 200 mg/kg Method: OECD Guideline 422 Target Organs: Liver
	Species: Rat, male Sex: male Application Route: Inhalation Dose: 5, 25, 100 ppm
	Exposure time: 13 wk Number of exposures: 6h/d, 5d/wk NOEL: 25 ppm Method: OECD Test Guideline 413
SDS Number:100000014573	12/52

Sulfole® 120B Mercap	otan
Version 5.9	Revision Date 2023-08-14
	Species: Rat, female Sex: female Application Route: Inhalation Dose: 5, 25, 100 ppm Exposure time: 13 wk Number of exposures: 6h/d, 5d/wk NOEL: 25 ppm Method: OECD Test Guideline 413
Genotoxicity in vitro	
tert-Dodecanethiol	: Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 476 Result: negative
	Test Type: Sister Chromatid Exchange Assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 479 Result: negative
	Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative
Genotoxicity in vivo	
tert-Dodecanethiol	<ul> <li>Test Type: In vivo micronucleus test Species: Mouse Route of Application: Oral Dose: 1250, 2500, 5000 mg/kg/bw Method: Mutagenicity (micronucleus test) Result: negative Remarks: Information given is based on data obtained from similar substances.</li> </ul>
Reproductive toxicity	
tert-Dodecanethiol	<ul> <li>Species: Rat Sex: male</li> <li>Application Route: oral gavage</li> <li>Dose: 50, 100, 200 mg/kg/d</li> <li>Exposure time: 10 wk</li> <li>Number of exposures: Daily</li> <li>Method: OECD Guideline 422</li> <li>NOAEL Parent: 200 mg/kg</li> <li>Animal testing did not show any effects on fertility.</li> </ul>
SDS Number:100000014573	13/52

Version 5.9

	Species: Rat Sex: female Application Route: oral gavage Dose: 50, 100, 200 mg/kg/d Exposure time: 8 - 9 wk Number of exposures: Daily Method: OECD Guideline 422 NOAEL Parent: 200 mg/kg NOAEL F1: 100 mg/kg Animal testing did not show any effects on fertility. Reduced fetal weight.
	Species: Rat Sex: male Application Route: oral gavage Dose: 25, 75, 200 mg/kg/d Exposure time: 18 wk Number of exposures: Daily Method: OECD Test Guideline 443 NOAEL Parent: 200 mg/kg NOAEL F1: 200 mg/kg NOAEL F2: 200 mg/kg Animal testing did not show any effects on fertility.
	Species: Rat Sex: female Application Route: oral gavage Dose: 25, 75, 200 mg/kg/d Exposure time: 16 - 18 wk Number of exposures: Daily Method: OECD Test Guideline 443 NOAEL Parent: 200 mg/kg NOAEL F1: 200 mg/kg NOAEL F2: 200 mg/kg Animal testing did not show any effects on fertility. Reduced fetal weight.
Developmental Toxicity	
tert-Dodecanethiol	<ul> <li>Species: Rat Application Route: Inhalation Dose: 0, 22.7, 88.6 ppm Number of exposures: 6 hrs/d Test period: GD 6-19 Method: OECD Guideline 414 NOAEL Teratogenicity: &gt;= 88.6 ppm No adverse effects expected</li> </ul>

Version 5.9	Revision Date 2023-08-14
	Species: Mouse Application Route: Inhalation Dose: 0, 22.7, 88.6 ppm Number of exposures: 6 hrs/d Test period: GD 6-19 Method: OECD Guideline 414 NOAEL Teratogenicity: >= 88.6 ppm No adverse effects expected
	Species: Rabbit Application Route: oral gavage Dose: 0, 50, 100, 200 mg/kg/d Number of exposures: Daily Test period: GD 6-28 Method: OECD Guideline 414 NOAEL Teratogenicity: 100 mg/kg NOAEL Maternal: 100 mg/kg Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses
Sulfole® 120B Mercaptan Aspiration toxicity	: May be harmful if swallowed and enters airways.
Sulfole® 120B Mercaptan Specific Target Organ Toxicity (Single Exposure)	: Remarks: Not classified due to data which are conclusive : although insufficient for classification.
Sulfole® 120B Mercaptan Specific Target Organ Toxicity (Repeated Exposure)	: Remarks: Not classified due to data which are conclusive : although insufficient for classification.
CMR effects	
tert-Dodecanethiol	<ul> <li>Carcinogenicity: Not available Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Teratogenicity: Animal testing did not show any effects on fetal development. Reproductive toxicity: No toxicity to reproduction</li> </ul>
11.2	
Information on other hazard	ls
Sulfole® 120B Mercaptan Further information Endocrine disrupting properties	<ul> <li>Solvents may degrease the skin.</li> <li>The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.</li> </ul>
SECTION 12: Ecological informe	tion
SECTION 12: Ecological informa	
12.1	
Toxicity	
SDS Number:100000014573	15/52

Sulfole® 120B Mercaptan
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Version 5.9

tert-Dodecanethiol	<ul> <li>LL50: &gt; 100 mg/l Exposure time: 96 h Species: Danio rerio (Zebra Fish) static test Method: OECD Test Guideline 203 No toxicity at the limit of solubility.</li> </ul>
Toxicity to daphnia and	other aquatic invertebrates
tert-Dodecanethiol	: EC50: > 0,056 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 202 No toxicity at the limit of solubility.
Toxicity to bacteria	
tert-Dodecanethiol	: NOEC: 8,6 mg/l Exposure time: 3 h Growth rate Respiration inhibition Method: OECD Test Guideline 209
	NOEC: > 10 mg/l Exposure time: 3 h Growth rate Respiration inhibition Method: OECD Test Guideline 209
Toxicity to daphnia and o	other aquatic invertebrates (Chronic toxicity)
	: NOEC: 0,0108 mg/l
tert-Dodecanethiol	Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211 No toxicity at the limit of solubility.
2	Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211 No toxicity at the limit of solubility.
	Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211 No toxicity at the limit of solubility.
2 Persistence and degrada Biodegradability 3 Bioaccumulative potenti	<ul> <li>Exposure time: 21 d</li> <li>Species: Daphnia magna (Water flea) semi-static test</li> <li>Method: OECD Test Guideline 211</li> <li>No toxicity at the limit of solubility.</li> </ul> ability <ul> <li>This material is not expected to be readily biodegradable.</li> </ul>
2 Persistence and degrada Biodegradability 3 Bioaccumulative potenti	Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211 No toxicity at the limit of solubility. ability : This material is not expected to be readily biodegradable. al
2 Persistence and degrada Biodegradability 3 Bioaccumulative potenti Elimination information (pe	Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211 No toxicity at the limit of solubility. ability : This material is not expected to be readily biodegradable. al

Sul	fole® 120B Mercapta	SAFETY DATA SHEET
	sion 5.9	Revision Date 2023-08-14
		The product may be accumulated in organisms.
12.4		
	Mobility in soil	
	Mobility	
	tert-Dodecanethiol	: After release, adsorbs onto soil.
	Results of PBT and vPvB ass Results of PBT assessment	<ul> <li>Sessment</li> <li>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.</li> </ul>
12.6	Endocrine disrupting propert	ties
	Endocrine disrupting properties	: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
12.7	Other adverse effects	
12.8	Additional ecological information	: May cause long lasting harmful effects to aquatic life.
	Additional Information	
	Ecotoxicology Assessment	
	Short-term (acute) aquatic haza tert-Dodecanethiol	ard : No toxicity at the limit of solubility.
	Long-term (chronic) aquatic hat tert-Dodecanethiol	zard : May cause long lasting harmful effects to aquatic life.
SEC	TION 13: Disposal considerat	tions
13.1	Waste treatment methods The information in this SDS per	rtains only to the product as shipped.
	may meet the criteria of a haza other State and local regulation regulated components may be	prose or recycle if possible. This material, if it must be discarded, ardous waste as defined by US EPA under RCRA (40 CFR 261) or as. Measurement of certain physical properties and analysis for necessary to make a correct determination. If this material is e, federal law requires disposal at a licensed hazardous waste
	Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or

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ulfole® 120B Mercapta	SAFETY DATA SHEE
ersion 5.9	Revision Date 2023-08-1
	ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.
For additional details, see the	Exposure Scenario in the Annex portion
CTION 14: Transport informati	ion
	hown here are for bulk shipments only, and may not apply to ages (see regulatory definition).
Goods Regulations for addition etc.) Therefore, the information	stic or international mode-specific and quantity-specific Dangerous nal shipping description requirements (e.g., technical name or names on shown here, may not always agree with the bill of lading shipping lashpoints for the material may vary slightly between the SDS and the
	EPARTMENT OF TRANSPORTATION) LIQUID, N.O.S., (TERT – DODECANETHIOL), III
	AL MARITIME DANGEROUS GOODS) IAZARDOUS MATERIAL OR DANGEROUS GOODS FOR HIS AGENCY.
	<b>TRANSPORT ASSOCIATION)</b> JLATED LIQUID, N.O.S., (TERT – DODECANETHIOL), 9, III
	<b>GEROUS GOODS BY ROAD (EUROPE))</b> IAZARDOUS MATERIAL OR DANGEROUS GOODS FOR HIS AGENCY.
DANGEROUS GOODS (EUR	AZARDOUS MATERIAL OR DANGEROUS GOODS FOR
ADN (EUROPEAN AGREEMI OF DANGEROUS GOODS B	ENT CONCERNING THE INTERNATIONAL CARRIAGE Y INLAND WATERWAYS)
	AZARDOUS MATERIAL ÓR DANGEROUS GOODS FOR
Other information	: tert- Dodecanethiol, S.T. 3, Cat.Y
	18/52

SAFETY DATA SHEET

Revision Date 2023-08-14

ECTION 15: Regulatory information			
	<u></u>		
.1 Safety, health and environmen National legislation	tal regulations/legislation specific for the substance or mixture		
	20/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 o he Council on the Registration, Evaluation, Authorisation and <del>I</del> )		
Water hazard class : (Germany)	WGK 2 water endangering		
.2 Chemical Safety Assessment			
Components : tert-d	odecanethiol A Chemical Safety Assessment 246-619-1 has been carried out for this substance.		
Major Accident Hazard : Legislation	96/82/EC Update: 2003 Dangerous for the environment 9a Quantity 1: 100 t Quantity 2: 200 t		
:	ZEU_SEVES3 Update: Not applicable		
Notification status Europe REACH	: This product is in full compliance according to REACH		
Switzerland CH INV United States of America (USA) TSCA Australia AIIC New Zealand NZIoC Japan ENCS Korea KECI	<ul> <li>regulation 1907/2006/EC.</li> <li>On the inventory, or in compliance with the inventory</li> <li>On or in compliance with the active portion of the TSCA inventory</li> <li>On the inventory, or in compliance with the inventory</li> <li>On the inventory, or in compliance with the inventory</li> <li>On the inventory, or in compliance with the inventory</li> <li>On the inventory, or in compliance with the inventory</li> <li>All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was</li> </ul>		
Philippines PICCS Taiwan TCSI China IECSC	<ul> <li>included on CPChem's notifications or if the Importer of Record themselves notified the substances.</li> <li>On the inventory, or in compliance with the inventory</li> <li>On the inventory, or in compliance with the inventory</li> <li>On the inventory, or in compliance with the inventory</li> </ul>		

SDS Number:100000014573

Version 5.9

Revision Date 2023-08-14

#### **SECTION 16: Other information**

NFPA Classification	: Health Hazard: 2 Fire Hazard: 2 Reactivity Hazard: 0	2 0
Further information		
Legacy SDS Number	: CPC00490	

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effe
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupation Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentrat
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substan
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recover Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
Number:100	000014572	21	0/52

### Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate

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

H315 Causes skin irritation.
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- May cause an allergic skin reaction. H317
- H319
- Causes serious eye irritation. May cause long lasting harmful effects to aquatic life. H413

SDS Number:100000014573

Version 5.9

SAFETY DATA SHEET

•	anufacture
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in
-	preparations at industrial sites
Sector of use	: SU3: Industrial Manufacturing (all)
Process category	: <b>PROC1:</b> Use in closed process, no likelihood of exposure
	PROC2: Use in closed, continuous process with occasional
	controlled exposure
	<b>PROC8b:</b> Transfer of substance or preparation (charging/
	discharging) from/ to vessels/ large containers at dedicated
	facilities
	<b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	<b>PROC15:</b> Use as laboratory reagent
Environmental release category	: ERC1: Manufacture of substances
Environmental release category	
2.1 Contributing scenario contro	Iling environmental exposure for:ERC1: Manufacture o
substances	
Environment factors not influenced	by risk management
Flow rate	: 0 m3/d
Remarks	: Not relevant since there is no release to waste water (dry
	process).
Other given operational conditions	affecting environmental exposure
Local release to the environment	anecting environmental exposure
Emission or Release Factor: Air	: 0%
Emission or Release Factor: Water	
Emission or Release Factor: Soil	
Local release rate: Water	: 0 kg/day
Remarks	: The waste of the substance is collected in a slop tank and
	treated as a waste by a dedicated contractor.
Local release rate: Air	: 0 kg/day
Remarks	: Incineration of gases with efficiency 100%.
Local release rate: Soil	: 0 kg/day
Remarks	: There is no direct exposure to soil.
Fechnical conditions and measures	/ Organizational manauraa
Remarks	: Not applicable
Remarks	. Not applicable
Conditions and measures related to	municipal sewage treatment plant
Type of Sewage Treatment Plant	: Municipal sewage treatment plant
Effectiveness (of a measure)	: 0%
	: Not relevant since there is no release to waste water (dry
Remarks	
	process).
Remarks	process).
Remarks	process). Illing worker exposure for: PROC1: Use in closed
Remarks 2.2 Contributing scenario contro	process). Illing worker exposure for: PROC1: Use in closed
Remarks 2.2 Contributing scenario contro	process). Illing worker exposure for: PROC1: Use in closed

Sulfala® 120P Margantar	SAFETY DATA SHEET
Sulfole® 120B Mercaptar Version 5.9	Revision Date 2023-08-14
Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <4 h
Human factors not influenced by ri Exposed skin area	isk management : One hand face only (240 cm2)
Other operational conditions affect	ting workers exposure
Outdoor / Indoor	: Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Use product only in closed system. Local exhaust ventilation- inhalation	
Conditions and measures related to	o personal protection, hygiene and health evaluation
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenes	
2.2 Contributing scenario contro continuous process with occas Product characteristics Physical Form (at time of use)	olling worker exposure for: PROC2: Use in closed, ional controlled exposure : Liquid substance
Process Temperature	: $<= 40 \text{ °C}$
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by ri Exposed skin area	isk management : Palms of both hands (480 cm2)
Other operational conditions affect	•
Outdoor / Indoor	: Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measures Closed continuous process with occ Local exhaust ventilation- inhalation Local exhaust ventilation-dermal:, N	casional controlled exposure n:, Yes (Effectiveness: 90 %)
	o personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chem employee training. (Effectiveness: 8	nically resistant gloves (tested to EN374) in combination with 'basic'
substance or preparation (charg	olling worker exposure for: PROC8b: Transfer of ging/ discharging) from/ to vessels/ large containers at
dedicated facilities	
dedicated facilities SDS Number:100000014573	23/52

Revision Date 2023-08-14

### Sulfole® 120B Mercaptan

Version 5.9

Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C Frequency and duration of use Exposure duration : <1h Human factors not influenced by risk management Exposed skin area : Two hands (960 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Remarks : Good general ventilation (3-5 air changes per hour) Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, Yes (Effectiveness: 95 %) Local exhaust ventilation-dermal:, Yes (Effectiveness: 95 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0%) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %) 2.2 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C Frequency and duration of use Exposure duration : <1h Human factors not influenced by risk management Exposed skin area : Palms of both hands (480 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Remarks : Enhanced general ventilation (5-10 air changes per hour) Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %) Local exhaust ventilation-dermal:, No (Effectiveness: 0 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 95 %) SDS Number:100000014573 24/52

Version 5.9

Product charac Physical Forn Process Tem	n (at time of use)	: Liqu : <= 4	id substance 0 °C				
Frequency and Exposure dur	I duration of use	: <11	1				
<b>Human factors</b> Exposed skin	not influenced b area		<b>gement</b> hand face only (:	240 c	:m2)		
<b>Other operatio</b> Outdoor / Ind Remarks	<b>nal conditions af</b> oor	: Indo	-	tion (3	3-5 air	changes p	er hour)
Technical cond	ditions and meas	ures					
(Effectiveness	ventilation- inhala :: 99 %) ventilation-derma			ed bo	oth pro	ovided with	laminar airflow.
there is potent Respiratory Pr	n,Yes,chemically r tial for direct conta rotection, No (Effe	act		or saf	ety gla	isses with s	side shields when
employee trair	ning. (Effectivenes	hemically resi ss: 80 %)	stant gloves (test	ted to	) EN37	'4) in comb	ination with 'basic
employee trair 3. Exposure e		hemically resi ss: 80 %)	stant gloves (test	ted to	) EN37	(4) in comb	ination with 'basic
employee trair <b>3. Exposure e</b>	ning. (Effectivenes	hemically resi ss: 80 %)	stant gloves (test		e type	(4) in comb	ination with 'basic Risk characterization ratio (PEC/PNEC
employee train <b>3. Exposure e</b> Environment Contributing	estimation and Exposure Assessment	hemically resi ss: 80 %) reference to Specific	stant gloves (test         its source         Compartment         Marine sediment			Level of Exposure 0,0004866 mg/kg dry weight (d.w	Risk characterization ratio (PEC/PNEC < 0,01
employee train <b>B. Exposure e</b> <b>Environment</b> Contributing Scenario ERC1	Exposure Assessment Method EUSES	hemically resiss: 80 %)	o its source			Level of Exposure 0,0004866 mg/kg dry	Risk characterization ratio (PEC/PNEC c < 0,01
employee train	Exposure Assessment Method EUSES facture of substan	hemically resises: 80 %) reference to Specific conditions ces	Stant gloves (test bits source Compartment Marine sediment Sewage treatment plant		e type	Level of Exposure 0,0004866 mg/kg dry weight (d.w 0 mg/L	Risk characterization ratio (PEC/PNEC < 0,01 .) < 0,01
employee train <b>5. Exposure e</b> <b>Environment</b> Contributing Scenario ERC1 ERC1: Manuf <b>Vorkers/Consu</b> Contributing Scenario	estimation and Exposure Assessment Method EUSES facture of substan umers Exposure Assessment Method	hemically resiss: 80 %)	stant gloves (test bits source Compartment Marine sediment Marine sediment Sewage treatment plant	Valu	e type	Level of Exposure 0,0004866 mg/kg dry weight (d.w 0 mg/L	Risk characterization ratio (PEC/PNEC < 0,01 .) < 0,01 Risk characterization ratio (PEC/PNEC):
employee train	Exposure Assessment Method EUSES facture of substan	hemically resises: 80 %) reference to Specific conditions Ces Specific	stant gloves (test         its source         Compartment         Marine sediment         Sewage treatment plant         Value type         Worker – inhalar long-term – syste	Valu tion, emic	e type Level	Level of Exposure 0,0004866 mg/kg dry weight (d.w 0 mg/L of Exposure	Risk characterization ratio (PEC/PNEC < 0,01 .) < 0,01 Risk characterization ratio (PEC/PNEC): 0,071
employee train  3. Exposure e  Environment  Contributing Scenario  ERC1  ERC1: Manuf  Norkers/Consu	Exposure Assessment Method EUSES facture of substan umers Exposure Assessment Method ECETOC TRA	hemically resises: 80 %) reference to Specific conditions Ces Specific	stant gloves (test         its source         Compartment         Marine sediment         Sewage treatment plant         Value type         Worker – inhalat	tion, emic long- ic	e type Level	Level of Exposure 0,0004866 mg/kg dry weight (d.w 0 mg/L	Risk characterization ratio (PEC/PNEC < 0,01 .) < 0,01 Risk characterization ratio (PEC/PNEC):

Sulfolo®	0 120B Mercapt	an	SAFI	ETY DATA SHEET
Version 5.9			Revisio	n Date 2023-08-14
PROC2	ECETOC TRA Modified	Worker – inhalation,	0,118 mg/m3	0,236
	Woulled	long-term – systemic Worker – dermal, long- term – systemic	0,274 mg/kg/d	0,161
		Worker – long-term – systemic Combined routes		0,397
PROC8b	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,295 mg/m3	0,59
		Worker – dermal, long- term – systemic	0,137 mg/kg/d	0,081
		Worker – long-term – systemic Combined routes		0,671
PROC9	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506
		Worker – dermal, long- term – systemic	0,343 mg/kg/d	0,202
		Worker – long-term – systemic Combined routes		0,708
PROC15	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,059 mg/m3	0,118
	medined	Worker – dermal, long- term – systemic	0,068 mg/kg/d	0,04
		Worker – long-term – systemic Combined routes		0,158
containers PROC9: T weighing) PROC15:	s at dedicated facilities ransfer of substance Use as laboratory rea	or preparation into small containers	s (dedicated filling	line, including
	osure Scenario	Jser to evaluate whether he w	forks inside the	boundaries set
Not app 1. Short title	licable of Exposure Scenario	Formulation		
Main User	·	: SU 3: Industrial uses: Use	s of substances as	s such or in
Process ca		<ul> <li>PROC1: Use in closed proper preparations at industrial s</li> <li>PROC1: Use in closed properties of the process of the proc</li></ul>	ites ocess, no likelihood ntinuous process tch process (synth other process (sy rises	d of exposure with occasional esis or nthesis) where

26/52

non-dedicated facilities

facilities

SDS Number:100000014573

(charging/discharging) from/to vessels/large containers at

**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated

Sulfala® 120P Margantan	SAFETY DATA SHEE
Sulfole® 120B Mercaptan	Revision Date 2023-08-1
Version 5.9	
	<b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing) <b>PROC15:</b> Use as laboratory reagent
Environmental release category	: ERC2: Formulation of preparations
Further information	: Formulation of preparations for Gold Paint for glassware and ceramics.
2.1 Contributing scenario control preparations	lling environmental exposure for:ERC2: Formulation of
Environment factors not influenced Flow rate	<b>by risk management</b> : 18.000 m3/d
Other given operational conditions a	affecting environmental exposure
Local release to the environment	
Emission or Release Factor: Air	: 0,1 %
Emission or Release Factor: Water Emission or Release Factor: Soil	
Local release rate: Air	: 0,01 % : 0,1 kg/day
Local release rate: Water	: 0,3 kg/day
Local release rate: Soil	: 0,01 kg/day
Technical conditions and measures Remarks Remarks	<ul> <li>/ Organizational measures</li> <li>: Sludge should be incinerated, contained or reclaimed.</li> <li>: No application of sewage sludge to soil</li> </ul>
Conditions and measures related to	municipal sewage treatment plant
	: Municipal sewage treatment plant
Flow rate of sewage treatment	: 2.000 m3/d
plant effluent	<b>20</b> <i>M</i>
Effectiveness (of a measure) Sludge Treatment	: 96 % : Not applicable
-	
2.2 Contributing scenario contro process, no likelihood of exposu	lling worker exposure for: PROC1: Use in closed re
Product characteristics	
Physical Form (at time of use)	: Liquid substance
Process Temperature	: <= 40 °C
Frequency and duration of use Exposure duration	: <4 h
Human factors not influenced by ris Exposed skin area	<b>k management</b> : One hand face only (240 cm2)
Other operational conditions affectir	ng workers exposure
Outdoor / Indoor	: Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
	07/50
SDS Number:100000014573	27/52

## Sulfole® 120B Mercaptan

Version 5.9	Revision Date 2023-08-14
Technical conditions and measure Use product only in closed system. Local exhaust ventilation- inhalation	-
Conditions and measures related t	o personal protection, hygiene and health evaluation
Respiratory Protection, No (Effectiv Dermal Protection, No (Effectivenes	
2.2 Contributing scenario contr continuous process with occas	olling worker exposure for: PROC2: Use in closed, ional controlled exposure
<b>Product characteristics</b> Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <4 h
Human factors not influenced by r Exposed skin area	isk management : Palms of both hands (480 cm2)
Other operational conditions affec Outdoor / Indoor	ting workers exposure : Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Closed continuous process with occ Local exhaust ventilation- inhalation	casional controlled exposure
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
	nically resistant gloves (tested to EN374) in combination with 'basic' y resistant gloves (tested to EN374) in combination with specific
2.2 Contributing scenario contr process (synthesis or formulati	olling worker exposure for: PROC3: Use in closed batch ion)
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by r Exposed skin area	isk management : One hand face only (240 cm2)
Other operational conditions affec Outdoor / Indoor	ting workers exposure : Indoor
SDS Number:100000014573	28/52

Sulfole® 120B Mercapta	SAFETY DATA SHEET
Version 5.9	Revision Date 2023-08-14
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Closed continuous process with oc Local exhaust ventilation- inhalation	es casional controlled exposure
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 8	nically resistant gloves (tested to EN374) in combination with 'basic'
and other process (synthesis)	Folling worker exposure for: PROC4, PROC9: Use in batch where opportunity for exposure arises, Transfer of small containers (dedicated filling line, including
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by r Exposed skin area	isk management : Palms of both hands (480 cm2)
Other operational conditions affect Outdoor / Indoor Remarks	t <b>ing workers exposure</b> : Indoor : Enhanced general ventilation (5-10 air changes per hour)
Technical conditions and measure Semi-closed process with occasion Local exhaust ventilation- inhalation	es al controlled exposure
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 8	nically resistant gloves (tested to EN374) in combination with 'basic'
	olling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at
Product characteristics Physical Form (at time of use)	: Liquid substance : <= 40 °C
Process Temperature	

Product characteristics         Physical Form (at time of use)       : Liquid substance         Process Temperature       : <= 40 °C         Frequency and duration of use       Exposure duration         Exposure duration       : < 1 h         Human factors not influenced by risk management       Exposed skin area         Exposed skin area       : Two hands (960 cm2)         Other operational conditions affecting workers exposure       Outdoor / Indoor         Outdoor / Indoor       : Indoor         Remarks       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures         Semi-closed process with occasional controlled exposure         Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation         Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)       Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory		SAFETY DATA SHEET
Exposure duration       : < < 15 min         Human factors not influenced by risk management       Exposed skin area       : Two hands (960 cm2)         Other opperational conditions affecting workers exposure       Outdoor / Indoor       : Indoor         Remarks       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures       Local exhaust ventilation-: inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation       Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No. (Effectiveness: 0 %)       Dermal Protection, No. (Effectiveness: 0 %)         2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics       Physical Form (at time of use) : Liquid substance         Process Temperature       : < 1 h         Human factors not influenced by risk management         Exposure duration       : Indoor         Exposure duration in all exposes with occasional controlled exposure         Outdor / Indoor       : Indoor         Respiratory Protection, No (Effectiveness: 0 %)       Conditions and measures         Semi-closed process with occasional controlled exposure       Loca	-	
Human factors not influenced by risk management         Exposed skin area       : Two hands (960 cm2)         Other operational conditions affecting workers exposure       Outdoor / Indoor         Quidoor / Indoor       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures       Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation       Eye Protection, Yes, Chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)       Demal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 0 %)         2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics       Physical Form (at time of use)         Product characteristics       Exposue duration of use         Exposed skin area       : Two hands (960 cm2)         Other operational conditions affecting workers exposure       Outdoor / Indoor         Conditions and measures       : Two hands (960 cm2)         Other operational conditions affecting workers exposure       Outdoor / Indoor         Exposue duration       : < 1 h		
Exposed skin area       : Two hands (960 cm2)         Other operational conditions affecting workers exposure Outdoor / Indoor       : Indoor         Remarks       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures       : Enhanced general ventilation (5-10 air changes per hour)         Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)       Demai Protection, Yes, demically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 0 %)         2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics Process Temperature       : < 40 °C	Exposure duration	: < 15 min
Outdoor / Indoor       Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures         Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)         Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC2b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics Physical Form (at time of use)       : Liquid substance Process Temperature         Exposure duration       : < 1 h		
Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)  Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %)  2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C  Frequency and duration of use Exposure duration of use Exposure duration of influenced by risk management Exposed skin area : Two hands (960 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Enhanced general ventilation (5-10 air changes per hour)  Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)  Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Demal Protection, Yes, wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 0 %) Demal Protection, Yes, wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 0 %) Demal Protection, Yes, wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 0 %) Demal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Wear c	Outdoor / Indoor	: Indoor
Conditions and measures related to personal protection, hygiene and health evaluation         Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)         Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics         Physical Form (at time of use)       : Liquid substance         Process Temperature       : < = 40 °C	Technical conditions and measure	es
Eve Protection,Yes,chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %) 2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C Frequency and duration of use Exposure duration : < 1 h Human factors not influenced by risk management Exposed skin area : Two hands (960 cm2) Other operational conditions affecting workers exposure Outdor / Indoor : Indoor Remarks : Enhanced general ventilation (5-10 air changes per hour) Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. User activity training. (Effectiveness: 80 %)	Local exhaust ventilation- inhalation	n:, No (Effectiveness: 0 %)
Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 80 %) 2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C Frequency and duration of use Exposure duration is << 1 h Human factors not influenced by risk management Exposed skin area : Two hands (960 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Remarks : Enhanced general ventilation (5-10 air changes per hour) Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation., No (Effectiveness: 0 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, No (Effectiveness: 0 %) Dermal Protection, No (Effectiveness: 0 %) Dermal Protection, No (Effectiveness: 0 %) Dermal Protection, No (Effectiveness: 0 %) 2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent	Eye Protection, Yes, chemically resist	
substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities         Product characteristics         Physical Form (at time of use)       : Liquid substance         Process Temperature       : <= 40 °C	Dermal Protection, Yes, Wear chen	nically resistant gloves (tested to EN374) in combination with 'basic'
Physical Form (at time of use)       : Liquid substance         Process Temperature       : <= 40 °C		
Exposure duration       : < 1 h		
Exposed skin area       : Two hands (960 cm2)         Other operational conditions affecting workers exposure       Outdoor / Indoor         Outdoor / Indoor       : Indoor         Remarks       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures         Semi-closed process with occasional controlled exposure         Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation         Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)         Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent	Frequency and duration of use Exposure duration	: <1h
Outdoor / Indoor Remarks       : Indoor : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent		
Remarks       : Enhanced general ventilation (5-10 air changes per hour)         Technical conditions and measures       Semi-closed process with occasional controlled exposure         Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %)         Conditions and measures related to personal protection, hygiene and health evaluation         Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact         Respiratory Protection, No (Effectiveness: 0 %)         Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %)         2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent		• •
Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, No (Effectiveness: 0 %) <b>Conditions and measures related to personal protection, hygiene and health evaluation</b> Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %) <b>2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent</b>		
Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, No (Effectiveness: 0 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %) <b>2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent</b>	Semi-closed process with occasion	al controlled exposure
Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 80 %) 2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent	Eye Protection, Yes, chemically resist	
reagent	Dermal Protection, Yes, Wear chen employee training., Wear chemicall	nically resistant gloves (tested to EN374) in combination with 'basic' y resistant gloves (tested to EN374) in combination with specific
SDS Number:100000014573 30/52	2.2 Contributing scenario contr reagent	olling worker exposure for: PROC15: Use as laboratory
30/0 <b>L</b>	SDS Number:100000014573	30/52

### Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

Product chara Physical For Process Ten	m (at time of use)	: Liqui : <= 40	d substance 0 °C			
Frequency and Exposure du	d duration of use	e : <1h	I			
Human factors Exposed ski	<b>s not influenced</b> n area		<b>jement</b> hand face only (2	240 cm2)		
Other operation Outdoor / Inco Remarks	onal conditions a door	: Indo	•	ntilation (5-	10 air change	es per hour)
Technical con	ditions and meas	sures				
Local exhaus	t ventilation- inhal	ation:, No (Effe	ectiveness: 0 %)			
employee trai activity trainin <b>3. Exposure</b>	ction, Yes, Wear of ining., Wear chem ig. (Effectiveness: estimation and	ically resistant 80 %)	gloves (tested to			
Environment						
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2	EUSES		Freshwater sediment		0,253 mg/kg dry weight (d.w.)	0,084
			Marine sediment		0,025 mg/kg dry weight (d.w.)	0,084
			Sewage treatment plant		0,006 mg/L	< 0,01
ERC2: Form	ulation of prepara	tions			1	1
Workers/Cons						

### Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,004 mg/m3	< 0,01
			Worker – dermal, long- term – systemic	0,003 mg/kg/d	< 0,01
			Worker – long-term – systemic Combined routes		< 0,01
PROC2	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,354 mg/m3	0,708
SDS Number:10	00000014573		31/5	52	

### Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

		Worker – dermal, long- term – systemic	0,027 mg/kg/d	0,016
		Worker – long-term – systemic Combined routes		0,724
PROC3	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,354 mg/m3	0,708
		Worker – dermal, long- term – systemic	0,014 mg/kg/d	< 0,01
		Worker – long-term – systemic Combined routes		0,716
PROC4, PROC9	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506
		Worker – dermal, long- term – systemic	0,137 mg/kg/d	0,081
		Worker – long-term – systemic Combined routes		0,587
PROC8a	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506
		Worker – dermal, long- term – systemic	0,274 mg/kg/d	0,161
		Worker – long-term – systemic Combined routes		0,667
PROC8b	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506
		Worker – dermal, long- term – systemic	0,274 mg/kg/d	0,161
		Worker – long-term – systemic Combined routes		0,667
PROC15	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506
		Worker – dermal, long- term – systemic	0,007 mg/kg/d	< 0,01
		Worker – long-term – systemic Combined routes		0,51

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC15: Use as laboratory reagent

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

Not applicable

1. Short title of Exposure Scenario: Use in polymer processing -industrial

SDS Number:100000014573

32/52

Sulfole® 120B Mercaptan	Revision Date 2023-08-1
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in
	preparations at industrial sites
Sector of use	: SU11: Manufacture of rubber products
Process category	: <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional
	controlled exposure
	<b>PROC3:</b> Use in closed batch process (synthesis or formulation)
	<b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises
	<b>PROC8a:</b> Transfer of substance or preparation
	(charging/discharging) from/to vessels/large containers at
	non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/
	discharging) from/ to vessels/ large containers at dedicated facilities
	<b>PROC9:</b> Transfer of substance or preparation into small
	containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental release category	: ERC6d: Industrial use of process regulators for polymerisation
5,7	processes in production of resins, rubbers, polymers
Further information	:
	Chain Transfer Agent for the production of styrene butadiene
	latex for rubber and paper coating, nitrile rubber, acrylonitrile
	butadiene styrene (ABS) and also for the production of
	expandable polystyrene.
of process regulators for polym	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,
of process regulators for polym	olling environmental exposure for:ERC6d: Industrial use
of process regulators for polymoolymers	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions	billing environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers, by risk management : 400.000 m3/d
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment	Dilling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers, by risk management : 400.000 m3/d affecting environmental exposure
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment Emission or Release Factor: Air	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %
of process regulators for polymoolymers Environment factors not influenced Flow rate Dther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %
of process regulators for polymolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air Fechnical conditions and measures	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day
<ul> <li>b) f process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>D) ther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air</li> <li>Fechnical conditions and measures Remarks</li> </ul>	by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day
of process regulators for polymoolymers Environment factors not influenced Flow rate Other given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air	olling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day
<ul> <li>b) f process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>D) ther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air</li> <li>Fechnical conditions and measures Remarks Remarks</li> <li>Conditions and measures related to the m</li></ul>	Delling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day         s/Organizational measures         : Sludge should be incinerated, contained or reclaimed.         : No application of sewage sludge to soil         : municipal sewage treatment plant
<ul> <li>b) process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>D) ther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air</li> <li>Fechnical conditions and measures Remarks Remarks</li> <li>Conditions and measures related to Type of Sewage Treatment Plant</li> </ul>	Delling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day         s/ Organizational measures         : Sludge should be incinerated, contained or reclaimed.         : No application of sewage sludge to soil         omunicipal sewage treatment plant         : Municipal sewage treatment plant
<ul> <li>b) process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>D) ther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air</li> <li>Fechnical conditions and measures Remarks Remarks</li> <li>Conditions and measures related to Type of Sewage Treatment Plant Flow rate of sewage treatment</li> </ul>	Delling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day         s/Organizational measures         : Sludge should be incinerated, contained or reclaimed.         : No application of sewage sludge to soil         : municipal sewage treatment plant
<ul> <li>by process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>Dther given operational conditions         Local release to the environment         Emission or Release Factor: Air         Emission or Release Factor: Water         Emission or Release Factor: Soil         Local release rate: Water         Local release rate: Air</li> <li>Fechnical conditions and measures         Remarks         Remarks         Remarks         Conditions and measures related to         Type of Sewage Treatment Plant</li> </ul>	Delling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day         s/ Organizational measures         : Sludge should be incinerated, contained or reclaimed.         : No application of sewage sludge to soil         omunicipal sewage treatment plant         : Municipal sewage treatment plant
<ul> <li>b) process regulators for polymosolymers</li> <li>Environment factors not influenced Flow rate</li> <li>D) ther given operational conditions Local release to the environment Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Local release rate: Water Local release rate: Air</li> <li>Fechnical conditions and measures Remarks Remarks</li> <li>Conditions and measures related to Type of Sewage Treatment Plant Flow rate of sewage treatment plant effluent</li> </ul>	Diling environmental exposure for:ERC6d: Industrial use erisation processes in production of resins, rubbers,         I by risk management         : 400.000 m3/d         affecting environmental exposure         : 0 %         : 0,1 %         : 0,025 %         : 2,5 kg/day         : 0 kg/day         : Sludge should be incinerated, contained or reclaimed.         : No application of sewage sludge to soil         : Municipal sewage treatment plant         : Municipal sewage treatment plant         : 10.000 m3/d

## Sulfole® 120B Mercaptan

Version 5.9

	alling worker and a sure for DDOO4. Use in slaged
process, no likelihood of expos	olling worker exposure for: PROC1: Use in closed ure
Product characteristics	
Physical Form (at time of use)	: Liquid substance
Process Temperature	: <= 40 °C
Frequency and duration of use	
Exposure duration	: <4h
Human factors not influenced by ri	isk management
Exposed skin area	: One hand face only (240 cm2)
Other operational conditions affect	ting workers exposure
Outdoor / Indoor	: Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure	S
Use product only in closed system.	
Local exhaust ventilation- inhalation	n:, No (Effectiveness: 0 %)
Conditions and measures related t	o personal protection, hygiene and health evaluation
Respiratory Protection, No (Effective	eness: 0 %)
Dermal Protection, No (Effectivenes	
continuous process with occas Product characteristics Physical Form (at time of use)	: Liquid substance
Process Temperature	: <= 40 °C
Frequency and duration of use	
Exposure duration	: <4h
Human factors not influenced by ri Exposed skin area	isk management : Palms of both hands (480 cm2)
Other operational conditions affect Outdoor / Indoor	ting workers exposure : Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Closed continuous process with occ Local exhaust ventilation- inhalation	casional controlled exposure
	o personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
	eness: 0 %) nically resistant gloves (tested to EN374) in combination with 'basic' y resistant gloves (tested to EN374) in combination with specific
SDS Number:100000014573	34/52

Sulfole® 120B Mercaptan	SAFETY DATA SHEET
Version 5.9	Revision Date 2023-08-14
activity training. (Effectiveness: 80 %	)
2.2 Contributing scenario contro process (synthesis or formulatio	Iling worker exposure for: PROC3: Use in closed batch
<b>Product characteristics</b> Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by ris Exposed skin area	<b>sk management</b> : One hand face only (240 cm2)
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measures Closed continuous process with occa Local exhaust ventilation- inhalation:	asional controlled exposure
	cally resistant gloves (tested to EN374) in combination with 'basic' resistant gloves (tested to EN374) in combination with specific
and other process (synthesis) w	Iling worker exposure for: PROC4, PROC9: Use in batch here opportunity for exposure arises, Transfer of nall containers (dedicated filling line, including
<b>Product characteristics</b> Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by ris Exposed skin area	<b>sk management</b> : Palms of both hands (480 cm2)
Other operational conditions affecti Outdoor / Indoor Remarks	ng workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour)
Technical conditions and measures Semi-closed process with occasional Local exhaust ventilation- inhalation:	I controlled exposure
SDS Number:100000014573	35/52

## Sulfole® 120B Mercaptan

Version 5.9

version 5.9	Revision Date 2023-08-14
Eye Protection, Yes, chemically resist there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chemic	ically resistant gloves (tested to EN374) in combination with 'basic' resistant gloves (tested to EN374) in combination with specific
	olling worker exposure for: PROC8a: Transfer of jing/discharging) from/to vessels/large containers at
<b>Product characteristics</b> Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
Human factors not influenced by ris Exposed skin area	sk management : Two hands (960 cm2)
Other operational conditions affecti Outdoor / Indoor Remarks	ing workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour)
Technical conditions and measures	5
Local exhaust ventilation- inhalation:	, No (Effectiveness: 0 %)
	<b>personal protection, hygiene and health evaluation</b> ant face shield, goggles, or safety glasses with side shields when
	ically resistant gloves (tested to EN374) in combination with 'basic' resistant gloves (tested to EN374) in combination with specific
	olling worker exposure for: PROC8b: Transfer of jing/ discharging) from/ to vessels/ large containers at
<b>Product characteristics</b> Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by ris Exposed skin area	sk management : Two hands (960 cm2)
SDS Number:100000014573	36/52

Sulfole® 1	20B Mercap	ntan			SAFE	TY DATA SHEET
Version 5.9		Jan			Revision	Date 2023-08-14
	nal conditions a	: Indoc	-	ntilation (5-		
Semi-closed p	ditions and mean process with occa ventilation- inhal	sional controlle				
Eye Protection	<b>d measures rela</b> n,Yes,chemically tial for direct cont	resistant face s				
Dermal Protect employee train	rotection, No (Eff ction, Yes, Wear ning., Wear chem g. (Effectiveness:	chemically resis	tant gloves (test			
2.2 Contribut reagent	ing scenario c	ontrolling wo	rker exposure	e for: PRO	C15: Use a	s laboratory
Product chara Physical Forr Process Tem	n (at time of use)	: Liquio : <= 4(	d substance ) °C			
Frequency and Exposure dur	I duration of use	<b>e</b> : <1h				
Human factors Exposed skin	anot influenced		<b>ement</b> hand face only (	240 cm2)		
Other operatio Outdoor / Ind Remarks	nal conditions a	: Indoo	-	ntilation (5-	10 air change	es per hour)
Technical con	ditions and mea	sures				
Local exhaust	ventilation- inhal	ation:, No (Effe	ctiveness: 0 %)			
Eye Protection	d measures relands, Yes,chemically tial for direct cont	resistant face s				
Dermal Protect employee train	rotection, No (Eff ction, Yes, Wear ning., Wear chem g. (Effectiveness:	chemically resis	stant gloves (test			
3. Exposure e	estimation and	reference to	its source			
Environment						
Environment Contributing Scenario ERC6d	Exposure Assessment Method EUSES	Specific conditions	Compartment Freshwater	Value type	Level of Exposure 0,106 mg/kg	Risk characterization ratio (PEC/PNEC): 0.035

### SAFETY DATA SHEET

Version 5.9

Revision Date 2023-08-14

			sediment		dry weight (d.w.)	
			Marine sediment		0,042 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,01 mg/L	< 0,01
ERC6d: Indus rubbers, polyr Vorkers/Consu		ss regulators f		n process	ses in product	ion of resins,
Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Lev	vel of Exposure	Risk characterizatio ratio (PEC/PNEC)
PROC1	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,004 mg/m3	< 0,01
			Worker – dermal, term – systemi	ic	,003 mg/kg/d	< 0,01
			Worker – long-ter systemic Combir routes	ned		< 0,01
PROC2	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,354 mg/m3	0,708
			Worker – dermal, term – system	ic	,027 mg/kg/d	0,016
			Worker – long-ter systemic Combir routes	ned		0,724
PROC3	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,354 mg/m3	0,708
			Worker – inhalat long-term – syste	emic	,014 mg/kg/d	< 0,01
			Worker – long-ter systemic Combir routes			0,716
PROC4, PROC9	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,253 mg/m3	0,506
			Worker – dermal, term – systemi	ic	,137 mg/kg/d	0,081
			Worker – long-ter systemic Combir routes			0,587
PROC8a	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,253 mg/m3	0,506
			Worker – dermal, term – systemi	ic	,274 mg/kg/d	0,161
			Worker – long-ter systemic Combir routes			0,667
PROC8b	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,253 mg/m3	0,506
			Worker – dermal, term – system	ic	,274 mg/kg/d	0,161
			Worker – long-ter systemic Combir routes	rm – ned		0,667
PROC15	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic	0,253 mg/m3	0,506
			Worker – dermal, term – system	ic	,007 mg/kg/d	< 0,01
			Worker – long-ter systemic Combir routes			0,51
PROC1: Use	in closed process	, no likelihood	of exposure	·		
PROC2: Use	in closed, continu	ous process v	vith occasional co	ontrolled	exposure	
	in closed batch pr	ocess (synthe	esis or formulation	,		
SDS Number:10	0000014573			38/52		

#### Version 5.9

Revision Date 2023-08-14

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC15: Use as laboratory reagent

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

 Not applicable

 1. Short title of Exposure Scenario: Lubricants - Industrial

 Main User Groups
 : SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

 Sector of use
 : SU0: Other

 Process category
 : 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)

 

 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

non-dedicated facilities

opportunity for exposure arises

**PROC4:** Use in batch and other process (synthesis) where

(charging/discharging) from/to vessels/large containers at

PROC8a: Transfer of substance or preparation

Environmental release category : **ERC6a:** Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for:ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Environment factors not influenced	by risk management
Flow rate	: 400.000 m3/d
Other given operational conditions a Local release to the environment	ffecting environmental exposure
Emission or Release Factor: Air	: 0,001 %
Emission or Release Factor: Water	- /
Emission or Release Factor: Soil	: 0,001 %
SDS Number:100000014573	39/52

Sulfala® 1200 Maraanta	SAFETY DATA SHEET
Sulfole® 120B Mercapta Version 5.9	n Revision Date 2023-08-14
Local release rate: Air Local release rate: Water	: 0,025 kg/day : 7,5 kg/day
Technical conditions and measure	
Remarks Remarks	<ul><li>Sludge should be incinerated, contained or reclaimed.</li><li>No application of sewage sludge to soil</li></ul>
	to municipal sewage treatment plant
Flow rate of sewage treatment Plant	: Municipal sewage treatment plant
plant effluent	. 10.000 mo/d
Sludge Treatment	: Not applicable
2.2 Contributing scenario contriprocess, no likelihood of expos	rolling worker exposure for: PROC1: Use in closed sure
Product characteristics	
Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use	
Exposure duration	: < 15 min
Human factors not influenced by r Exposed skin area	isk management : One hand face only (240 cm2)
Other operational conditions affect	ting workers exposure
Outdoor / Indoor Remarks	<ul><li>Indoor</li><li>Good general ventilation (3-5 air changes per hour)</li></ul>
Technical conditions and measure Use product only in closed system. Local exhaust ventilation- inhalation Local exhaust ventilation-dermal:, I	n:, No (Effectiveness: 0 %)
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
Respiratory Protection, No (Effectiv Dermal Protection, No (Effectivene	
2.2 Contributing scenario contri continuous process with occas	rolling worker exposure for: PROC2: Use in closed, sional controlled exposure
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
Human factors not influenced by r Exposed skin area	isk management : Palms of both hands (480 cm2)
Other operational conditions affect	ting workers exposure
SDS Number:100000014573	40/52

Sulfole® 120B Mercapta	SAFETY DATA SHEET
Version 5.9	Revision Date 2023-08-14
Outdoor / Indoor Remarks	: Indoor : Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Closed continuous process with or Local exhaust ventilation- inhalatio Local exhaust ventilation-dermal:,	ccasional controlled exposure n:, Yes (Effectiveness: 90 %)
	to personal protection, hygiene and health evaluation istant face shield, goggles, or safety glasses with side shields when
	rator with APF of 10 (Effectiveness: 90 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)
2.2 Contributing scenario cont process (synthesis or formulat	rolling worker exposure for: PROC3: Use in closed batch tion)
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
Human factors not influenced by Exposed skin area	risk management : One hand face only (240 cm2)
Other operational conditions affe	cting workers exposure
Outdoor / Indoor Remarks	<ul><li>Indoor</li><li>Good general ventilation (3-5 air changes per hour)</li></ul>
Technical conditions and measure Closed continuous process with or Local exhaust ventilation- inhalatio Local exhaust ventilation-dermal:,	ccasional controlled exposure n:, Yes (Effectiveness: 90 %)
	to personal protection, hygiene and health evaluation istant face shield, goggles, or safety glasses with side shields when
	rator with APF of 10 (Effectiveness: 90 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)
	rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises
Product characteristics	
Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
SDS Number:100000014573	41/52
SDS Number:100000014573	41/52

SAFETY DATA SHEET

### Sulfole® 120B Mercaptan Version 5.9 Revision Date 2023-08-14 Human factors not influenced by risk management Exposed skin area : Palms of both hands (480 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Remarks : Good general ventilation (3-5 air changes per hour) Technical conditions and measures Semi-closed process with occasional controlled exposure Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %) Local exhaust ventilation-dermal:, No (Effectiveness: 0 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, Yes, Respirator with APF of 10 (Effectiveness: 90 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %) 2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Product characteristics Physical Form (at time of use) : Liquid substance Process Temperature : <= 40 °C Frequency and duration of use Exposure duration : < 15 min Human factors not influenced by risk management Exposed skin area : Two hands (960 cm2) Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Remarks : Good general ventilation (3-5 air changes per hour) Technical conditions and measures Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %) Local exhaust ventilation-dermal:, No (Effectiveness: 0 %) Conditions and measures related to personal protection, hygiene and health evaluation Eye Protection, Yes, chemically resistant face shield, goggles, or safety glasses with side shields when there is potential for direct contact Respiratory Protection, Yes, Respirator with APF of 10 (Effectiveness: 90 %) Dermal Protection, Yes, Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 95 %) 2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **Product characteristics** SDS Number:100000014573 42/52

Sulfole® 120B Mercapta	SAFETY DATA SHEET
Version 5.9	Revision Date 2023-08-14
Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
Human factors not influenced by r Exposed skin area	isk management : Two hands (960 cm2)
Other operational conditions affec Outdoor / Indoor Remarks	ting workers exposure : Indoor : Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Semi-closed process with occasion Local exhaust ventilation- inhalatior Local exhaust ventilation-dermal:, N	al controlled exposure n:, Yes (Effectiveness: 95 %)
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
	ator with APF of 10 (Effectiveness: 90 %) nically resistant gloves (tested to EN374) in combination with specific %)
substance or preparation into s	olling worker exposure for: PROC9: Transfer of small containers (dedicated filling line, including
substance or preparation into s weighing) Product characteristics Physical Form (at time of use)	<ul> <li>Email containers (dedicated filling line, including</li> <li>Liquid substance</li> </ul>
substance or preparation into s weighing) Product characteristics	small containers (dedicated filling line, including
substance or preparation into s weighing) Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> </ul>
substance or preparation into s weighing) Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by r Exposed skin area Other operational conditions affec Outdoor / Indoor	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> <li>isk management</li> <li>: Palms of both hands (480 cm2)</li> <li>ting workers exposure</li> <li>: Indoor</li> </ul>
<ul> <li>substance or preparation into sweighing)</li> <li>Product characteristics         <ul> <li>Physical Form (at time of use)</li> <li>Process Temperature</li> </ul> </li> <li>Frequency and duration of use         <ul> <li>Exposure duration</li> </ul> </li> <li>Human factors not influenced by r         <ul> <li>Exposed skin area</li> </ul> </li> <li>Other operational conditions affec         <ul> <li>Outdoor / Indoor</li></ul></li></ul>	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> <li>isk management</li> <li>Palms of both hands (480 cm2)</li> <li>ting workers exposure</li> <li>Indoor</li> <li>Good general ventilation (3-5 air changes per hour)</li> <li>es</li> <li>al controlled exposure</li> <li>Yes (Effectiveness: 90 %)</li> </ul>
<ul> <li>substance or preparation into sweighing)</li> <li>Product characteristics <ul> <li>Physical Form (at time of use)</li> <li>Process Temperature</li> </ul> </li> <li>Frequency and duration of use <ul> <li>Exposure duration</li> </ul> </li> <li>Human factors not influenced by r <ul> <li>Exposed skin area</li> </ul> </li> <li>Other operational conditions affec <ul> <li>Outdoor / Indoor</li> <li>Remarks</li> </ul> </li> <li>Technical conditions and measure <ul> <li>Semi-closed process with occasion</li> <li>Local exhaust ventilation-dermal:, N</li> </ul> </li> <li>Conditions and measures related to the present of the present</li></ul>	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> <li>isk management</li> <li>Palms of both hands (480 cm2)</li> <li>ting workers exposure</li> <li>Indoor</li> <li>Good general ventilation (3-5 air changes per hour)</li> <li>es</li> <li>al controlled exposure</li> <li>Yes (Effectiveness: 90 %)</li> </ul>
<ul> <li>substance or preparation into sweighing)</li> <li>Product characteristics <ul> <li>Physical Form (at time of use)</li> <li>Process Temperature</li> </ul> </li> <li>Frequency and duration of use <ul> <li>Exposure duration</li> </ul> </li> <li>Human factors not influenced by r <ul> <li>Exposed skin area</li> </ul> </li> <li>Other operational conditions affec <ul> <li>Outdoor / Indoor</li> <li>Remarks</li> </ul> </li> <li>Technical conditions and measure <ul> <li>Semi-closed process with occasion</li> <li>Local exhaust ventilation- inhalatior</li> <li>Local exhaust ventilation-dermal:, N</li> </ul> </li> <li>Conditions and measures related t <ul> <li>Eye Protection, Yes, chemically resist</li> <li>there is potential for direct contact</li> <li>Respiratory Protection, Yes, Respired</li> </ul></li></ul>	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> <li>isk management</li> <li>Palms of both hands (480 cm2)</li> <li>ting workers exposure</li> <li>Indoor</li> <li>Good general ventilation (3-5 air changes per hour)</li> <li>al controlled exposure</li> <li>Yes (Effectiveness: 90 %)</li> <li>No (Effectiveness: 0 %)</li> <li>to personal protection, hygiene and health evaluation</li> <li>stant face shield, goggles, or safety glasses with side shields when</li> </ul>
<ul> <li>substance or preparation into sweighing)</li> <li>Product characteristics         <ul> <li>Physical Form (at time of use)</li> <li>Process Temperature</li> </ul> </li> <li>Frequency and duration of use         <ul> <li>Exposure duration</li> </ul> </li> <li>Human factors not influenced by r         <ul> <li>Exposed skin area</li> </ul> </li> <li>Other operational conditions affec         <ul> <li>Outdoor / Indoor</li> <li>Remarks</li> </ul> </li> <li>Technical conditions and measure         Semi-closed process with occasion         Local exhaust ventilation- inhalatior         Local exhaust ventilation-dermal:, N         <ul> <li>Conditions and measures related t             <ul> <li>Eye Protection, Yes, chemically resis             there is potential for direct contact             Respiratory Protection, Yes, Wear chemical         </li></ul> </li> </ul></li></ul>	<ul> <li>Example containers (dedicated filling line, including</li> <li>Liquid substance</li> <li>&lt;= 40 °C</li> <li>&lt; 15 min</li> <li>isk management</li> <li>Palms of both hands (480 cm2)</li> <li>ting workers exposure</li> <li>Indoor</li> <li>Good general ventilation (3-5 air changes per hour)</li> <li>al controlled exposure</li> <li>Yes (Effectiveness: 90 %)</li> <li>No (Effectiveness: 0 %)</li> <li>to personal protection, hygiene and health evaluation</li> <li>stant face shield, goggles, or safety glasses with side shields when</li> </ul>

### SAFETY DATA SHEET

## Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

0,032

0,012

0,006 mg/m3

44/52

2.2 Contribut reagent	ing scenario co	ontrolling wo	rker exposure	e for:	PRO	C15: Use	as laboratory
Product chara Physical For Process Ten	m (at time of use)	: Liqui : <= 4(	d substance ) °C				
Frequency and Exposure du	d duration of use ration	: <15	min				
Human factors Exposed skir	s not influenced I n area		ement hand face only (;	240 c	m2)		
Other operatic Outdoor / Inc Remarks	onal conditions at door	: Indoo	-	tion (3	3-5 air	changes pe	er hour)
Technical con	ditions and meas	sures					
	t ventilation- inhala t ventilation-derma			6)			
there is poten Respiratory P Dermal Prote activity trainin <b>B. Exposure</b>	g. (Effectiveness:	act spirator with A shemically resis 80 %) <b>reference to</b>	PF of 10 (Effecti stant gloves (test its source	ivene ted to	ss: 90 EN37	%) (4) in combi	ination with specific
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Valu	e type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC6a	EUSES		Freshwater sediment			0,307 mg/kg dry weight (d.w.)	
			Marine sediment			0,124 mg/kg dry weight (d.w.)	
			Sewage treatment plant			0,031 mg/L	< 0,01
ERC6a: Indu Workers/Cons	sumers	g in manufactur Specific		ostano		e of interme	Risk characterization
Scenario	Assessment Method	conditions				·	ratio (PEC/PNEC):
PROC1	ECETOC TRA Modified		Worker – inhalat long-term – syste	emic		)6 mg/m3	0,012
			Worker – dermal, term – system		0,03	4 mg/kg/d	0,02

term – systemic Worker – long-term –

systemic Combined routes Worker – inhalation,

ECETOC TRA

SDS Number:100000014573

PROC2

#### SAFETY DATA SHEET

### Sulfole® 120B Mercaptan

Version 5.9

Revision Date 2023-08-14

VEISION 3.9			1/6/13/011	Date 2023-00-1
	Modified	long-term – systemic		
		Worker – dermal, long- term – systemic	0,274 mg/kg	0,161
		Worker – long-term – systemic Combined routes		0,173
PROC3	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,018 mg/m3	0,035
		Worker – dermal, long- term – systemic	0,138 mg/kg/d	0,081
		Worker – long-term – systemic Combined routes		0,117
PROC4	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,03 mg/m3	0,059
		Worker – dermal, long- term – systemic	0,686 mg/kg/d	0,404
		Worker – long-term – systemic Combined routes		0,463
PROC8a	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,059 mg/m3	0,118
		Worker – dermal, long- term – systemic	0,686 mg/kg/d	0,403
		Worker – long-term – systemic Combined routes		0,521
PROC8b	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,015 mg/m3	0,03
		Worker – dermal, long- term – systemic	0,686 mg/kg/d	0,403
		Worker – long-term – systemic Combined routes		0,433
PROC9	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,03 mg/m3	0,059
		Worker – dermal, long- term – systemic	0,686 mg/kg/d	0,404
		Worker – long-term – systemic Combined routes		0,463
PROC15	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	0,03 mg/m3	0,059
		Worker – dermal, long- term – systemic	0,068 mg/kg/d	0,04
		Worker – long-term – systemic Combined routes		0,099

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

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC15: Use as laboratory reagent

SDS Number:100000014573

45/52

Version 5.9

Revision Date 2023-08-14

<ul> <li>mining – industrial</li> <li>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</li> <li>SU2a: Mining, (without offshore industries)</li> <li>PROC1: Use in closed process, no likelihood of exposure</li> <li>PROC2: Use in closed, continuous process with occasional controlled exposure</li> <li>PROC3: Use in closed batch process (synthesis or ormulation)</li> <li>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</li> <li>PROC8a: Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities</li> <li>PROC8b: Transfer of substance or preparation (charging/lischarging) from/ to vessels/ large containers at dedicated acilities</li> <li>PROC9: Transfer of substance or preparation into small</li> </ul>
<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites <b>SU2a:</b> Mining, (without offshore industries) <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or ormulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated acilities
Areparations at industrial sites <b>GU2a:</b> Mining, (without offshore industries) <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or ormulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated acilities
Areparations at industrial sites <b>GU2a:</b> Mining, (without offshore industries) <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or ormulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated acilities
<ul> <li>PROC1: Use in closed process, no likelihood of exposure</li> <li>PROC2: Use in closed, continuous process with occasional controlled exposure</li> <li>PROC3: Use in closed batch process (synthesis or ormulation)</li> <li>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</li> <li>PROC8a: Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities</li> <li>PROC8b: Transfer of substance or preparation (charging/lischarging) from/ to vessels/large containers at dedicated facilities</li> </ul>
<ul> <li>PROC2: Use in closed, continuous process with occasional controlled exposure</li> <li>PROC3: Use in closed batch process (synthesis or ormulation)</li> <li>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</li> <li>PROC8a: Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities</li> <li>PROC8b: Transfer of substance or preparation (charging/lischarging) from/ to vessels/ large containers at dedicated acilities</li> </ul>
<ul> <li>PROC3: Use in closed batch process (synthesis or ormulation)</li> <li>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</li> <li>PROC8a: Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities</li> <li>PROC8b: Transfer of substance or preparation (charging/ lischarging) from/ to vessels/ large containers at dedicated acilities</li> </ul>
PROC8a: Transfer of substance or preparation charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated acilities
charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ lischarging) from/ to vessels/ large containers at dedicated acilities
non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ lischarging) from/ to vessels/ large containers at dedicated acilities
lischarging) from/ to vessels/ large containers at dedicated acilities
containers (dedicated filling line, including weighing)
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Jsed effectively as a secondary/scavenger collector for base netal sulfides.
environmental exposure for:ERC4: Industrial use o oducts, not becoming part of articles
<b>sk management</b> 8.000 m3/d
ting environmental exposure
)%
) % ),1 % ),025 %
) % ),1 % ),025 % ) kg/day
) % ),1 % ),025 %
) % ),1 % ),025 % ) kg/day
9 % 9,1 % 9,025 % 9 kg/day kg/day ganizational measures Not applicable hicipal sewage treatment plant
9 % 9,1 % 9,025 % 9 kg/day kg/day ganizational measures Not applicable hicipal sewage treatment plant Aunicipal sewage treatment plant
9 % 9,1 % 9,025 % 9 kg/day kg/day ganizational measures Not applicable hicipal sewage treatment plant

Sulfala® 1200 Maraanta	SAFETY DATA SHEE
Sulfole® 120B Mercaptan	Revision Date 2023-08-1
Effectiveness (of a measure)	: 96 %
2.2 Contributing scenario contr process, no likelihood of expos	rolling worker exposure for: PROC1: Use in closed sure
<u> </u>	
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <4 h
Human factors not influenced by r Exposed skin area	isk management : One hand face only (240 cm2)
Other operational conditions affec Outdoor / Indoor	
Remarks	: Indoor : Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Use product only in closed system. Local exhaust ventilation- inhalation	
Respiratory Protection, No (Effective Dermal Protection, No (Effectivened	
Respiratory Protection, No (Effectiv Dermal Protection, No (Effectivenes 2.2 Contributing scenario contri	veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed,
Respiratory Protection, No (Effectiv Dermal Protection, No (Effectivenes 2.2 Contributing scenario contr continuous process with occas	veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed,
Respiratory Protection, No (Effectiv Dermal Protection, No (Effectivene	veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed,
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenes) 2.2 Contributing scenario contr continuous process with occas Product characteristics Physical Form (at time of use)	<pre>/eness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure         : Liquid substance</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenes) 2.2 Contributing scenario contre continuous process with occass Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration	<pre>veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure  : Liquid substance : &lt;= 40 °C : &lt; 4 h</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenest 2.2 Contributing scenario contre continuous process with occas Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by r Exposed skin area Other operational conditions affect	<pre>/eness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure      Liquid substance     &lt; &lt;= 40 °C         : &lt;4 h  isk management         : Palms of both hands (480 cm2) sting workers exposure</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenes) 2.2 Contributing scenario contre- continuous process with occas Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by re- Exposed skin area	<pre>/eness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure      Liquid substance     &lt; = 40 °C         : &lt;4 h risk management         : Palms of both hands (480 cm2)</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenes) 2.2 Contributing scenario contre- continuous process with occass Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by r Exposed skin area Other operational conditions affect Outdoor / Indoor Remarks	<pre>veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure  : Liquid substance : &lt;= 40 °C : &lt; 4 h risk management : Palms of both hands (480 cm2) rting workers exposure : Indoor : Good general ventilation (3-5 air changes per hour) es casional controlled exposure</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectiveness 2.2 Contributing scenario contre continuous process with occass Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by r Exposed skin area Other operational conditions affect Outdoor / Indoor Remarks Technical conditions and measure Closed continuous process with occ Local exhaust ventilation- inhalation	<pre>veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure  : Liquid substance : &lt;= 40 °C : &lt; 4 h risk management : Palms of both hands (480 cm2) rting workers exposure : Indoor : Good general ventilation (3-5 air changes per hour) es casional controlled exposure</pre>
Respiratory Protection, No (Effective Dermal Protection, No (Effectivenest 2.2 Contributing scenario contr continuous process with occas Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by r Exposed skin area Other operational conditions affec Outdoor / Indoor Remarks Technical conditions and measure Closed continuous process with occ Local exhaust ventilation- inhalation	<pre>veness: 0 %) ss: 0 %) rolling worker exposure for: PROC2: Use in closed, sional controlled exposure      Liquid substance</pre>

Sulfole® 120B Mercapta	n
Version 5.9	Revision Date 2023-08-14
Dermal Protection, Yes, Wear cher employee training. (Effectiveness:	mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)
2.2 Contributing scenario cont process (synthesis or formulat	rolling worker exposure for: PROC3: Use in closed batch tion)
Product characteristics	
Physical Form (at time of use)	
Process Temperature	: <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by I	risk managament
Exposed skin area	: One hand face only (240 cm2)
Other operational conditions affect	
Outdoor / Indoor	: Indoor
Remarks	: Good general ventilation (3-5 air changes per hour)
Technical conditions and measure Closed batch process with occasio Local exhaust ventilation- inhalatio	nal controlled exposure.
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv	<b>to personal protection, hygiene and health evaluation</b> istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic'
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness:	istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 2.2 Contributing scenario cont	istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic'
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 2.2 Contributing scenario cont	istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 2.2 Contributing scenario contro other process (synthesis) when	istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 2.2 Contributing scenario contro other process (synthesis) when Product characteristics Physical Form (at time of use)	<ul> <li>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)</li> <li>rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises</li> <li>: Liquid substance</li> </ul>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: 2.2 Contributing scenario contro- other process (synthesis) where Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises  : Liquid substance : &lt;= 40 °C : &lt;1 h</pre>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: 2.2 Contributing scenario contro- other process (synthesis) where Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises  : Liquid substance : &lt;= 40 °C : &lt;1 h</pre>
Eye Protection,Yes,chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: 2.2 Contributing scenario contri- other process (synthesis) when Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by the Exposed skin area	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises</pre>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: <b>2.2 Contributing scenario contro</b> <b>other process (synthesis) when</b> <b>Product characteristics</b> Physical Form (at time of use) Process Temperature <b>Frequency and duration of use</b> Exposure duration <b>Human factors not influenced by re</b> Exposed skin area <b>Other operational conditions affect</b> Outdoor / Indoor	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises          Liquid substance         &lt; &lt;= 40 °C         &lt; &lt;1 h risk management</pre>
Eye Protection,Yes,chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: 2.2 Contributing scenario contri- other process (synthesis) when Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by the Exposed skin area	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises</pre>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: 2.2 Contributing scenario contrest other process (synthesis) where Product characteristics Physical Form (at time of use) Process Temperature Frequency and duration of use Exposure duration Human factors not influenced by the Exposed skin area Other operational conditions affect Outdoor / Indoor Remarks	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)  rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises  : Liquid substance : &lt;= 40 °C : &lt; 1 h risk management : Palms of both hands (480 cm2)  cting workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour) es nal controlled exposure</pre>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: <b>2.2 Contributing scenario contro</b> <b>other process (synthesis) when</b> <b>Product characteristics</b> Physical Form (at time of use) Process Temperature <b>Frequency and duration of use</b> Exposure duration <b>Human factors not influenced by responded and the second states</b> <b>Other operational conditions affect</b> Outdoor / Indoor Remarks <b>Technical conditions and measure</b> Semi-closed process with occasion Local exhaust ventilation- inhalatio	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %)  rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises  : Liquid substance : &lt;= 40 °C : &lt; 1 h risk management : Palms of both hands (480 cm2)  cting workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour) es nal controlled exposure</pre>
Eye Protection, Yes, chemically resi there is potential for direct contact Respiratory Protection, No (Effective Dermal Protection, Yes, Wear chere employee training. (Effectiveness: <b>2.2 Contributing scenario contri- other process (synthesis) where</b> <b>Product characteristics</b> Physical Form (at time of use) Process Temperature <b>Frequency and duration of use</b> Exposure duration <b>Human factors not influenced by re- Exposed skin area</b> <b>Other operational conditions affect</b> Outdoor / Indoor Remarks <b>Technical conditions and measure</b> Semi-closed process with occasior Local exhaust ventilation- inhalatio	<pre>istant face shield, goggles, or safety glasses with side shields when veness: 0 %) mically resistant gloves (tested to EN374) in combination with 'basic' 80 %) rolling worker exposure for: PROC4: Use in batch and re opportunity for exposure arises</pre>

Sulfole® 120B Mercapta	SAFETY DATA SHEET
Version 5.9	Revision Date 2023-08-14
Eye Protection, Yes, chemically resis	stant face shield, goggles, or safety glasses with side shields when
there is potential for direct contact Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 8	nically resistant gloves (tested to EN374) in combination with 'basic'
	rolling worker exposure for: PROC8a: Transfer of ging/discharging) from/to vessels/large containers at
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: < 15 min
Human factors not influenced by r Exposed skin area	isk management : Two hands (960 cm2)
Other operational conditions affec Outdoor / Indoor Remarks	ting workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour)
Technical conditions and measure	es
Local exhaust ventilation- inhalation	n:, No (Effectiveness: 0 %)
	to personal protection, hygiene and health evaluation stant face shield, goggles, or safety glasses with side shields when
Respiratory Protection, No (Effectiv Dermal Protection, Yes, Wear cher employee training. (Effectiveness: 8	nically resistant gloves (tested to EN374) in combination with 'basic'
	rolling worker exposure for: PROC8b: Transfer of ging/ discharging) from/ to vessels/ large containers at
Product characteristics Physical Form (at time of use) Process Temperature	: Liquid substance : <= 40 °C
Frequency and duration of use Exposure duration	: <1h
Human factors not influenced by r Exposed skin area	isk management : Two hands (960 cm2)
Other operational conditions affec Outdoor / Indoor Remarks	ting workers exposure : Indoor : Enhanced general ventilation (5-10 air changes per hour)
SDS Number:100000014573	49/52

7

< 0,01

	20B Maraa	ston			SAFE	TY DATA SHEET
Version 5.9	20B Mercap	Jian			Revision	Date 2023-08-1
Technical con Semi-closed p	ditions and mea process with occa t ventilation- inhal	sional controlle				<u>Dato 2020 00 1</u>
Eye Protectio	<b>d measures rela</b> n,Yes,chemically tial for direct cont	resistant face s				
Dermal Prote	Protection, No (Eff ction, Yes, Wear ning. (Effectivene	chemically resis		ted to EN37	74) in combina	ation with 'basic'
	ing scenario con r preparation in					
Product chara Physical Fori Process Tem	m (at time of use)	: Liquio : <= 40				
Frequency and Exposure du	d duration of use	e ∶<1h				
Human factors Exposed skir	<b>s not influenced</b> n area		ement s of both hands	(480 cm2)		
Other operation Outdoor / Inc Remarks	onal conditions a door	: Indoo	•	ntilation (5-	10 air chang	es per hour)
Semi-closed p	<b>ditions and mea</b> process with occa t ventilation- inhal	<b>sures</b> sional controlle	d exposure	X	5	. ,
Eye Protectio	<b>d measures rela</b> n,Yes,chemically tial for direct cont	resistant face s				
Dermal Prote	rotection, No (Eff ction, Yes, Wear ning. (Effectivene	chemically resis		ted to EN37	74) in combina	ation with 'basic'
3. Exposure	estimation and	reference to	its source			
Environment						
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC)
ERC6a	EUSES		Freshwater sediment		0,83 mg/kg dry weight (d.w.)	0,277
			Marine sediment		0,083 mg/kg dry weight	0,277

dry weight (d.w.) 0,021 mg/L Sewage

SDS Number:100000014573 50/52

Sulfole® 1	20B Mercap	tan		SAF	ETY DATA SHEET				
Version 5.9				Revisi	on Date 2023-08-14				
	treatment plant								
ERC6a: Indus	strial use resulting	in manufactur	e of another substand	ce (use of interm	ediates)				
Workers/Consu	umers								
Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):				
PROC1	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,004 mg/m3	< 0,01				
			Worker – dermal, long- term – systemic	0,003 mg/kg/d	< 0,01				
			Worker – long-term – systemic Combined routes		< 0,01				
PROC2	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,354 mg/m3	0,708				
			Worker – dermal, long- term – systemic	0,027 mg/kg/d	0,016				
			Worker – long-term – systemic Combined routes		0,724				
PROC3	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,354 mg/m3	0,708				
			Worker – dermal, long- term – systemic	0,014 mg/kg/d	< 0,01				
			Worker – long-term – systemic Combined routes		0,716				
PROC4	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506				
			Worker – dermal, long- term – systemic	0,137 mg/kg/d	0,081				
			Worker – long-term – systemic Combined routes		0,587				
PROC8a	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,235 mg/m3	0,506				
			Worker – dermal, long- term – systemic	0,274 mg/kg/d	0,161				
			Worker – long-term – systemic Combined routes		0,667				
PROC8b	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506				
			Worker – dermal, long- term – systemic	0,274 mg/kg/d	0,161				
			Worker – long-term – systemic Combined routes		0,667				
PROC9	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,253 mg/m3	0,506				
			Worker – dermal, long- term – systemic	0,137 mg/kg/d	0,081				
			Worker – long-term – systemic Combined routes		0,587				
PROC1: Use	in closed process	, no likelihood							
PROC2: Use	in closed, continu	ous process w	ith occasional contro	lled exposure					
PROC3: Use	in closed batch pr	ocess (synthe	sis or formulation)						
PROC4: Use	in batch and othe	r process (syn	thesis) where opportu	inity for exposure	e arises				
PROC8a: Tra at non-dedica		e or preparatic	on (charging/dischargi	ng) from/to vesse	els/large containers				
SDS Number:100000014573 51/52									

### Version 5.9

Revision Date 2023-08-14

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)

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

Not applicable