



### 9.3. Exposure scenario 3: Use at industrial sites - Use of Karstedt concentrate in silicone polymer, silicone elastomer and silicone article production

**Product category used:** PC 0: Other; PC 1: Adhesives, Sealants; PC 9a: Coatings and Paints, Thinners, paint removers; PC 9b: Fillers, putties, plasters, modelling clay; PC 14: Metal surface treatment products; PC 15: Non-metal-surface treatment products; PC 20: Products such as ph-regulators, flocculants, precipitants, neutralization agents; PC 23: Leather treatment products; PC 26: Paper and board treatment products; PC 31: Polishes and Wax Blends; PC 32: Polymer Preparations and Compounds; PC 34: Textile dyes and impregnating products

(Mouldable rubber compound)

**Sector of use:** SU 5: Manufacture of textiles, leather, fur; SU 6a: Manufacture of wood and wood products; SU 6b: Manufacture of pulp, paper and paper products; SU 9: Manufacture of fine chemicals; SU 11: Manufacture of rubber products; SU 12: Manufacture of plastics products, including compounding and conversion; SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement; SU 16: Manufacture of computer, electronic and optical products, electrical equipment; SU 17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment.; SU 18: Manufacture of furniture; SU 19: Building and construction work; SU 20: Health services

Environment contributing scenario(s):		
CS 1	Use of Karstedt concentrate in silicone polymer, silicone elastomer and silicone article production	ERC 6d
Worker contributing scenario(s):		
CS 2	Handling of the preparation	PROC 8b
CS 3	Small scale handling of preparation	PROC 9
CS 4	Polymerisation in fully contained process	PROC 1
CS 5	Polymerisation in closed continuous process	PROC 2
CS 6	Polymerisation in closed batch process	PROC 3
CS 7	Polymerisation in open or semi-closed process	PROC 4
CS 8	Mixing or blending in batch process	PROC 5
CS 9	Dipping and pouring	PROC 13
CS 10	Further processing	PROC 14
CS 11	Laboratory analyses	PROC 15
CS 12	Handling and processing of massive object	PROC 21
CS 13	Wet cleaning	PROC 28

**Subsequent service life exposure scenario(s):**

ES5: Service life (professional worker) - Handling of silicone articles in professional settings

ES6: Service life (consumers) - Handling of silicone articles by consumers

#### 9.3.1. Env CS 1: Use of Karstedt concentrate in silicone polymer, silicone elastomer and silicone article production ( ERC 6d )

##### 9.3.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily use amount at site: <= 0.125 tonnes/day
• Annual use amount at site: <= 2.5 tonnes/year
• Percentage of EU tonnage used at regional scale: = 10 %
Technical and organisational conditions and measures
• On site treatment of off-air: Electrostatic precipitators or wet electrostatic precipitators or cyclones or fabric/bag filter or ceramic/metal mesh filter according to the BAT Reference Document in the Non-Ferrous



<p>Metals Industry</p> <p><i>Direct air emissions should be reduced by implementing one or more of the following RMMs (air concentration range for which the RMM is suitable is specified in parenthesis):</i></p> <ul style="list-style-type: none"> <li>• <i>Electrostatic precipitators using wide electrode spacing: 5 – 15 mg/Nm<sup>3</sup></i></li> <li>• <i>Wet electrostatic precipitators: &lt; 5 mg/Nm<sup>3</sup></i></li> <li>• <i>Cyclones, but as primary collector: &lt; 50 mg/Nm<sup>3</sup></i></li> <li>• <i>Fabric or bag filters: high efficiency in controlling fine particulate (melting): achieve emission values &lt; 5mg/Nm<sup>3</sup>. Membrane filtration techniques can achieve &lt; 1 mg/Nm<sup>3</sup></i></li> <li>• <i>Ceramic and metal mesh filters. PM10 particles are removed: 0.1 mg/Nm<sup>3</sup></i></li> </ul> <p><i>Wet scrubbers: &lt; 4 mg/Nm<sup>3</sup></i></p>
<ul style="list-style-type: none"> <li>• The substance should not be released to water</li> </ul> <p><i>Emissions to surface water or to the sewage system are not allowed in this scenario</i></p>
<p>Conditions and measures related to biological sewage treatment plant</p>
<ul style="list-style-type: none"> <li>• Biological STP: None [Effectiveness Water: 0%]</li> </ul>
<p>Conditions and measures related to external treatment of waste (including article waste)</p>
<ul style="list-style-type: none"> <li>• Particular considerations on the waste treatment operations: No (low concentration)</li> </ul> <p><i>Particular risks from waste treatment unlikely due low concentration of substance in waste stream. Waste disposal according to national/local legislation is sufficient. If the platinum content of the waste is elevated enough, internal or external recovery/recycling is considered.</i></p>
<p>Other conditions affecting environmental exposure</p>
<ul style="list-style-type: none"> <li>• Receiving surface water flow rate: <math>\geq 1.8E4</math> m<sup>3</sup>/day</li> </ul>
<ul style="list-style-type: none"> <li>• Discharge rate of effluent: <math>\geq 2E3</math> m<sup>3</sup>/day</li> </ul>

### 9.3.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

**Table 9.31. Local releases to the environment**

Release	Release estimation method	Explanations
Water	Estimated release factor	<p><b>Release factor before on site RMM: 0%</b></p> <p><b>Release factor after on site RMM: 0%</b></p> <p><b>Local release rate: 0 kg/day</b></p> <p><b>Explanation:</b></p> <p>No water is used in the process, the process is not connected to the water/sewage system. No equipment containing KC that is cleaned with water, but only with solvents that are collected and disposed of at a certified disposal company.</p>
Air	Estimated release factor (based on SPERC Eurometaux 2.5-6a v2.1)	<p><b>Release factor before on site RMM: 1E-3%</b></p> <p><b>Release factor after on site RMM: 1E-3%</b></p> <p><b>Local release rate: 1.25E-3 kg/day</b></p>
Non agricultural soil	Estimated release factor	<p><b>Release factor after on site RMM: 0%</b></p> <p><b>Explanation:</b></p> <p>No direct release to soil</p>

### 9.3.1.3. Exposure and risks for the environment and man via the environment

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table. The exposure estimates have been obtained with EUSES 2.1.2 unless stated otherwise.

**Table 9.32. Exposure concentrations and risks for the environment and man via the environment**

Protection target	Exposure concentration	Risk quantification
Fresh water	<b>Local PEC: 1.44E-10 mg/L</b>	RCR < 0.01



Protection target	Exposure concentration	Risk quantification
Sediment (freshwater)	Local PEC: 3.63E-7 mg/kg dw	RCR < 0.01
Marine water	Local PEC: 8.3E-11 mg/L	RCR < 0.01
Sediment (marine water)	Local PEC: 2.09E-7 mg/kg dw	RCR < 0.01
Sewage Treatment Plant	Local PEC: 0 mg/L	RCR < 0.01
Agricultural soil	Local PEC: 4.48E-7 mg/kg dw	RCR < 0.01

### 9.3.2. Worker CS 2: Handling of the preparation ( PROC 8b )

Task(s) covered with this contributing scenario: Transfer and filling process.

#### 9.3.2.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 25 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.2.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.33. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	6E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.6
Dermal, systemic, long term	2E-3 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.133
Combined routes, systemic, long-term		RCR = 0.733

**Remarks on exposure data from external estimation tools:**



**MEASE 1.02.01:**

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

**9.3.3. Worker CS 3: Small scale handling of preparation ( PROC 9 )**

Task(s) covered with this contributing scenario: Transfer and filling process.

**9.3.3.1. Conditions of use**

	Method
Product (article) characteristics	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Percentage (w/w) of substance in mixture/article: <= 25 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
• Respiratory protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

**9.3.3.2. Exposure and risks for workers**

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.34. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	6E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.6
Dermal, systemic, long term	2E-3 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.133
Combined routes, systemic, long-term		RCR = 0.733

**Remarks on exposure data from external estimation tools:**

**MEASE 1.02.01:**

Explanation:



Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.4. Worker CS 4: Polymerisation in fully contained process ( PROC 1 )

Task(s) covered with this contributing scenario: Mixing, blending of Karstedt concentrate.

#### 9.3.4.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 5 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Closed process without likelihood of exposure	
• Pattern of exposure control: Non-direct handling	
• Pattern of use: Closed system without breaches	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.4.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.35. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	1E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.1
Dermal, systemic, long term	2.8E-5 mg/kg bw/day (MEASE 1.02.01)	RCR < 0.01
Combined routes, systemic, long-term		RCR = 0.102

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE



(reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.5. Worker CS 5: Polymerisation in closed continuous process ( PROC 2 )

Task(s) covered with this contributing scenario: Mixing, blending of Karstedt concentrate.

#### 9.3.5.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 5 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Closed continuous process with occasional controlled exposure	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Non-direct handling	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.5.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.36. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	1E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.1
Dermal, systemic, long term	7.1E-5 mg/kg bw/day (MEASE 1.02.01)	RCR < 0.01
Combined routes, systemic, long-term		RCR = 0.105

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE



(reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.6. Worker CS 6: Polymerisation in closed batch process ( PROC 3 )

Task(s) covered with this contributing scenario: Mixing, blending of Karstedt concentrate.

#### 9.3.6.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 5 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Closed batch process with occasional controlled exposure	
• Pattern of exposure control: Non-direct handling	
• Pattern of use: Non-dispersive use	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.6.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.37. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	2E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.2
Dermal, systemic, long term	2.9E-5 mg/kg bw/day (MEASE 1.02.01)	RCR < 0.01
Combined routes, systemic, long-term		RCR = 0.202

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.



### 9.3.7. Worker CS 7: Polymerisation in open or semi-closed process ( PROC 4 )

Task(s) covered with this contributing scenario: Mixing, blending of Karstedt concentrate.

#### 9.3.7.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 5 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Generic local exhaust ventilation: Lower confidence limit (industrial use) [Effectiveness Inhalation: 78%] <i>Standard efficiency</i> Inhalation explanation: <i>Efficiency for industrial use</i>	
• Pattern of exposure control: Non-direct handling	
• Pattern of use: Non-dispersive use	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.7.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.38. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	2E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.2
Dermal, systemic, long term	7.1E-5 mg/kg bw/day (MEASE 1.02.01)	RCR < 0.01
Combined routes, systemic, long-term		RCR = 0.205

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.





### 9.3.8. Worker CS 8: Mixing or blending in batch process ( PROC 5 )

#### 9.3.8.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 5 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Generic local exhaust ventilation: Lower confidence limit (industrial use) [Effectiveness Inhalation: 78%] <i>Standard efficiency</i> Inhalation explanation: <i>Efficiency for industrial use</i>	
• Pattern of exposure control: Non-direct handling	
• Pattern of use: Non-dispersive use	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.8.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.39. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	2E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.2
Dermal, systemic, long term	7.1E-5 mg/kg bw/day (MEASE 1.02.01)	RCR < 0.01
Combined routes, systemic, long-term		RCR = 0.205

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.



### 9.3.9. Worker CS 9: Dipping and pouring ( PROC 13 )

#### 9.3.9.1. Conditions of use

	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 1 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

#### 9.3.9.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.40. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	1E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.1
Dermal, systemic, long term	3.4E-4 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.023
Combined routes, systemic, long-term		RCR = 0.123

#### Remarks on exposure data from external estimation tools:

##### MEASE 1.02.01:

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.10. Worker CS 10: Further processing ( PROC 14 )

#### 9.3.10.1. Conditions of use



	Method
Product (article) characteristics	
• Physical form of the used product: Solid object	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 1 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

### 9.3.10.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.41. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	1E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.1
Dermal, systemic, long term	3.4E-4 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.023
Combined routes, systemic, long-term		RCR = 0.123

#### **Remarks on exposure data from external estimation tools:**

##### **MEASE 1.02.01:**

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.11. Worker CS 11: Laboratory analyses ( PROC 15 )

Task(s) covered with this contributing scenario: Quality control.

#### 9.3.11.1. Conditions of use



	Method
Product (article) characteristics	
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 1 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

### 9.3.11.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.42. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	1E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.1
Dermal, systemic, long term	1.7E-4 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.011
Combined routes, systemic, long-term		RCR = 0.111

#### **Remarks on exposure data from external estimation tools:**

##### **MEASE 1.02.01:**

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.12. Worker CS 12: Handling and processing of massive object ( PROC 21 )

#### 9.3.12.1. Conditions of use



	Method
Product (article) characteristics	
• Physical form of the used product: Solid object	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 1 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Inclusion into/onto matrix	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: No	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

### 9.3.12.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.43. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	5E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.5
Dermal, systemic, long term	1.4E-3 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.093
Combined routes, systemic, long-term		RCR = 0.593

#### **Remarks on exposure data from external estimation tools:**

##### **MEASE 1.02.01:**

Explanation:

Dermal, systemic, long term

For calculation of systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.

### 9.3.13. Worker CS 13: Wet cleaning ( PROC 28 )

#### 9.3.13.1. Conditions of use

	Method
Product (article) characteristics	



	Method
• Physical form of the used product: Liquid, including paste/slurry/suspension	
• Maximum emission potential of the substance: Very low <i>Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.</i>	
• Percentage (w/w) of substance in mixture/article: <= 25 %	
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: <= 8 h/day	
Technical and organisational conditions and measures	
• Occupational Health and Safety Management System: Advanced	
• Local exhaust ventilation: No	
• Pattern of use: Non-dispersive use	
• Pattern of exposure control: Direct handling	
• Contact level: Intermittent	
• Additional operational conditions for cleaning and maintenance: Maintenance and repair work only at machinery/systems which are not in operation. Minor cleaning tasks may be conducted under operation.	
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: Yes (APF >= 10)	
• Dermal protection: Chemical resistant dermal protection with basic employee training. (effectiveness >= 90%)	
• Face/eye protection: No	
Other conditions affecting workers exposure	
• Place of use: Indoor	
• Operating temperature: <= 40 °C	

### 9.3.13.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

**Table 9.44. Exposure concentrations and risks for workers**

Route of exposure and type of effects	Exposure concentration	Risk quantification
Inhalation, systemic, long term	3E-3 mg/m <sup>3</sup> (MEASE 1.02.01)	RCR = 0.3
Dermal, systemic, long term	2E-3 mg/kg bw/day (MEASE 1.02.01)	RCR = 0.133
Combined routes, systemic, long-term		RCR = 0.433

#### **Remarks on exposure data from external estimation tools:**

##### **MEASE 1.02.01:**

Explanation:

According to ECHA Guidance R. 12 (Version 3.0, December 2015) PROC 28 should be used as descriptor for cleaning and maintenance activities. In MEASE, Version 1.02.01, PROC 28 is not available and PROC 8a was used as surrogate in MEASE for the exposure calculation.

Dermal, systemic, long term

For calculation of dermal systemic exposure, the exposure estimate for total dermal loading as obtained in MEASE (reported in mg/day) is divided by a body weight of 70 kg for workers.