Annex: Exposure Scenarios

1. Short title of exposure scenario

Manufacture of substance, Distribution of substance SU3; SU8, SU9; ERC1; PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9; PC19

Contributing exposure scenario		
Use descriptors covered	ERC1: Manufacture of sub	stances
Operational conditions	1	
Annual amount per site	288,000,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	0.00 %	
Emission factor water	0.30 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2,000 m3/d
Exposure estimate and reference to	its source	
Risk Characterization Ratio (RCR)	0.514	
		posure is driven by marine
	water.	
	1,869	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is dri	iven by marine sediment.	

Control of exposure and risk management measures

Risk from environmental exposure is driven by marine sediment.

Contributing exposure scenario	
Use descriptors covered	ERC1: Manufacture of substances
Operational conditions	- ·
Annual amount per site	288,000,000 kg
Minimum emission days per year Continuous	300
Emission factor air	0.001 %
Emission factor water	0.05 %

Emission factor soil	0.01 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow ((m3/d)	2,000 m3/d
Exposure estimate and reference to	its source	
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental ex	xposure is driven by marine
	water.	
	1,869	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is dr	iven by marine sediment.	

Contributing exposure scenario	
	SU3: Industrial uses
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure.
Operational conditions	
Operational conditions	condic coid
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Concentration of the substance	Content. >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Exposure estimate and reference to	o its source
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, short-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.3571
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.1
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalative, long-term - local
Exposure estimate	0.03 mg/m ³
Risk Characterization Ratio (RCR)	0.001

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasional controlled exposure.
Operational conditions	

	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
	480 min 5 days per week
Duration and Frequency of activity	
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.	
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.1429
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
-	Worker - dermal, long-term - local
Exposure estimate	40 μg/cm ²
Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	3.0042 mg/m ³
Risk Characterization Ratio (RCR)	0.1001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/t exposure estimates)	ra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasional controlled exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	240 min 5 days per week

Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.1429
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	18.0250 mg/m ³
Risk Characterization Ratio (RCR)	0.6008
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.	
Exposure estimate and reference to	ts source

Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	7.5104 mg/m ³
Risk Characterization Ratio (RCR)	0.2503
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified

	version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.or	g/tra Please note that a modified version has been used (see
exposure estimates)	-

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Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, short-term - local
Expedure estimate	200 μg/cm ²
Exposure estimate Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
Fundation and instants	Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.02

Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
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Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	· · · · · · · · · · · · · · · · · · ·
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
Exposuro octimato	Worker - dermal, short-term - local 200 µg/cm ²
Exposure estimate Risk Characterization Ratio (RCR)	0.7143
Assessment method	 0.7143 ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	4.5063 mg/m ³
Risk Characterization Ratio (RCR)	0.1502
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

Contributing exposure scenario

Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Wear suitable respiratory protection.	Effectiveness: 90 %
In case no respiratory protection is	
used:, Reduce duration of activity to	
less than 15 min	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %

Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local
Europeuro potimento	
Exposure estimate Risk Characterization Ratio (RCR)	200 µg/cm ² 0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposuro ostimato	· · ·
Exposure estimate Risk Characterization Ratio (RCR)	15.0208 mg/m ³ 0.5007
	0.0007
Guidance to Downstream Users	The Diagon note that a modified version has been used (see
	tra Please note that a modified version has been used (see
exposure estimates)	

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2. Short title of exposure scenario

Polymer production, Use as Monomer SU3; SU8, SU9; ERC6c; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9; PC19

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Operational conditions	

Annual amount per site	64,318,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	0.001 %	
Emission factor water	0.05 %	
Emission factor soil	0.01 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Other Factors: Environment	Indoor use.	
Risk Management Measures	·	
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2,000 m3/d
Exposure estimate and reference to	its source	
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
	417,417	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is dri	iven by marine sediment.	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC1: Use in closed process, no likelihood of exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, short-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.3571
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.1
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalative, long-term - local
Exposure estimate	0.03 mg/m ³

Risk Characterization Ratio (RCR) 0.001

SU3: Industrial uses
PROC2: Use in closed, continuous process with occasiona controlled exposure.
acrylic acid
Content: >= 0 % - <= 100 %
liquid
480 min 5 days per week
Indoor
Palm of both hands (480 cm ²)
Effectiveness: 90 %
Effectiveness: 80 %
its source
ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
Worker - dermal, short-term - local
40 μg/cm ² 0.1429
 ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local
40 μg/cm ²
0.04
ECETOC TRA v2.0 Worker; modified version
Worker - inhalative, long-term - local
3.0042 mg/m ³
0.1001

Contributing exposure scenario	
	SU3: Industrial uses
Use descriptors covered	PROC2: Use in closed, continuous process with occasional
	controlled exposure.

Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.1429
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate Risk Characterization Ratio (RCR)	18.0250 mg/m ³ 0.6008

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of one hand (240 cm ²)	
Risk Management Measures		
Provide extract ventilation to points	Effectiveness: 90 %	

where emissions occur (LEV).	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust	
ventilation is present:, Wear a suitable	
respiratory protection with adequate	
effectiveness .	
Exposure estimate and reference to	
	ECETOC TRA v2.0 Worker; modified version, ECETOC
	TRA modified version: Reduction factor for local exhaust
Assessment method	ventilation (LEV) has not been used for the calculation of
	dermal exposure estimates., ECETOC TRA modified
	version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.0714
	ECETOC TRA v2.0 Worker; modified version, ECETOC
	TRA modified version: Reduction factor for local exhaust
Assessment method	ventilation (LEV) has not been used for the calculation of
	dermal exposure estimates., ECETOC TRA modified
	version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	7.5104 mg/m ³
Risk Characterization Ratio (RCR)	0.2503
Guidance to Downstream Users	•
For scaling see: http://www.ecetoc.org/	tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified

	version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.	
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust

	ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	6.0083 mg/m ³
Risk Characterization Ratio (RCR)	0.2003
Guidance to Downstream Users	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	60 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	12.0167 mg/m ³	
Risk Characterization Ratio (RCR)	0.4006	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see		

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable	
respiratory protection with adequate	
effectiveness ., Alternatively:, Reduce	
duration of activity to less than 15 min	
Exposure estimate and reference to	ts source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	400 μg/cm ² 1.4286
Risk Characterization Ratio (RCR) Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
-	Worker - dermal, long-term - local
Exposure estimate	400 µg/cm ²
Risk Characterization Ratio (RCR)	
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
	ra Please note that a modified version has been used (see
exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses

	PROC8a: Transfer of substance or preparation
	(charging/discharging) from/to ves-sels/large containers at
	non-dedicated facilities
Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points	Effectiveness: 90 %
where emissions occur (LEV).	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust	
ventilation is present:, Wear a suitable	
respiratory protection with adequate	
effectiveness ., Alternatively:, Reduce	
duration of activity to less than 15 min	
Exposure estimate and reference to	its source
-	ECETOC TRA v2.0 Worker; modified version, ECETOC
	TRA modified version: Reduction factor for local exhaust
Assessment method	ventilation (LEV) has not been used for the calculation of
	dermal exposure estimates., ECETOC TRA modified
	version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.7143
	ECETOC TRA v2.0 Worker; modified version, ECETOC
	TRA modified version: Reduction factor for local exhaust
Assessment method	ventilation (LEV) has not been used for the calculation of
	dermal exposure estimates., ECETOC TRA modified
	version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/	ra Please note that a modified version has been used (see
exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
•	480 min 5 days per week
Duration and Frequency of activity	
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	1
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant	Effectiveness: 80 %
gloves.	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	4.5063 mg/m ³
Risk Characterization Ratio (RCR)	0.1502
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org	y/tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)

Risk Management Measures		
Use suitable chemically resistant	Effectiveness: 80 %	
gloves.		
Wear suitable respiratory protection.	Effectiveness: 90 %	
In case no respiratory protection is		
used:, Reduce duration of activity to		
less than 15 min		
Exposure estimate and reference to		
	ECETOC TRA v2.0 Worker; modified version, ECETOC	
	TRA modified version: Reduction factor for local exhaust	
Assessment method	ventilation (LEV) has not been used for the calculation of	
	dermal exposure estimates., ECETOC TRA modified	
	version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
	ECETOC TRA v2.0 Worker; modified version, ECETOC	
	TRA modified version: Reduction factor for local exhaust	
Assessment method	ventilation (LEV) has not been used for the calculation of	
	dermal exposure estimates., ECETOC TRA modified	
	version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users		
	tra Please note that a modified version has been used (see	
exposure estimates)		

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate		

effectiveness ., Alternatively:, Reduce	
duration of activity to less than 15 min	
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/ exposure estimates)	tra Please note that a modified version has been used (see

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3. Short title of exposure scenario Polymer production, Use as Monomer SU3; SU8, SU9, SU12; ERC6c, ERC6b; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9; PC19, PC32

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Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6c: Industrial use of monomers for manufacture of thermoplastics
Operational conditions	
Annual amount per site	16,250,000 kg
Minimum emission days per year Continuous	300
Emission factor air	0.01 %
Emission factor water	1 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18,000 m3/d
Other Factors: Environment	Indoor use.

Risk Management Measures		
Type of STP	Municipal STP	
Assumed sewage treatment plant flow (
Exposure estimate and reference to it	,	
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
Maximum amount of safe use	105,462 kg	
Risk from environmental exposure is dri	iven by marine sediment.	
· · · · ·		
Contributing exposure scenario		
Use descriptors covered	ERC6c: Industrial use of monomers for manufacture of thermoplastics	
Operational conditions	I	
Annual amount per site	11,700,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	0.01 %	
Emission factor water	1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
Type of STP	Municipal STP	
Assumed sewage treatment plant flow (
Exposure estimate and reference to i		
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
Maximum amount of safe use	105,462 kg	
	iven by marine sediment.	

Use descriptors covered	ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
Operational conditions	
Annual amount per site	16,250,000 kg
Minimum emission days per year Continuous	300
Emission factor air	0.01 %
Emission factor water	1 %

Emission factor soil	0 %		
Receive Surf. Water (Flow Rate).	18,000 m3/d		
Other Factors: Environment	Indoor use.		
Risk Management Measures			
Type of STP	Municipal STP		
Assumed sewage treatment plant flow (m3/d)		2,000 m3/d	
Exposure estimate and reference to its source			
Risk Characterization Ratio (RCR)	0.514		
	Risk from environmental exposure is driven by marine		
	water.		
Maximum amount of safe use	105,462 kg		
Risk from environmental exposure is driven by marine sediment.			

Contributing exposure scenario		
Use descriptors covered	ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	
Operational conditions		
Annual amount per site	11,700,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	0.01 %	
Emission factor water	1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Other Factors: Environment	Indoor use.	
Risk Management Measures	·	
Type of STP		Municipal STP
Assumed sewage treatment plant flow	(m3/d)	2,000 m3/d
Exposure estimate and reference to	its source	
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
Maximum amount of safe use	105,462 kg	
Risk from environmental exposure is dr	iven by marine sediment.	

Contributing exposure scenario	
Use descriptors covered	ERC6c: Industrial use of monomers for manufacture of thermoplastics
Operational conditions	
Annual amount per site	3,250,000 kg
Minimum emission days per year	300

Continuous		
Emission factor air	1 %	
Emission factor water	1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
Type of STP	Municipal STP	
Assumed sewage treatment plant flow (imed sewage treatment plant flow (m3/d)	
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
Maximum amount of safe use	105,462 kg	
Risk from environmental exposure is driven by marine sediment.		

Contributing exposure scenario			
Use descriptors covered	ERC6c: Industrial use of monomers for manufacture of thermoplastics		
Operational conditions			
Annual amount per site	3,250,000 kg	3,250,000 kg	
Minimum emission days per year Continuous	300	300	
Emission factor air	1 %		
Emission factor water	1 %		
Emission factor soil	0 %		
Receive Surf. Water (Flow Rate).	18,000 m3/d		
Other Factors: Environment	Indoor use.		
Risk Management Measures			
Type of STP		Municipal STP	
Assumed sewage treatment plant flow	/ (m3/d)	2,000 m3/d	
Exposure estimate and reference to	o its source		
Risk Characterization Ratio (RCR)	0.514		
	Risk from environmental exposure is driven by marine		
	water.		
Maximum amount of safe use	105,462 kg		
Risk from environmental exposure is	driven by marine sediment.		

Contributing exposure scenario	
	ERC6d: Industrial use of process regulators for
Use descriptors covered	polymerisation processes in production of resins, rubbers,
	polymers

3,250,000 kg 300 1 % 1 %	
1 %	
1 %	
0 %	
18,000 m3/d	
Indoor use.	
•	
	Municipal STP
(m3/d)	2,000 m3/d
its source	
0.514	
Risk from environn	mental exposure is driven by marine
water.	
105,462 kg	
)	(m3/d) its source 0.514 Risk from environr water.

Contributing exposure scenario		
Use descriptors covered		of process regulators for ses in production of resins, rubbers,
Operational conditions		
Annual amount per site	3,250,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	1 %	
Emission factor water	1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Other Factors: Environment Indoor use.		
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow		2,000 m3/d
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmen	tal exposure is driven by marine
	water.	
Maximum amount of safe use	105,462 kg	

Risk from environmental exposure is driven by marine sediment.

Contributing exposure scenario	
	SU3: Industrial uses
Use descriptors covered	PROC1: Use in closed process, no likelihood of exposure.
Operational conditions	
	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Exposure estimate and reference to	o its source
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, short-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.3571
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - local
Exposure estimate	100 µg/cm ²
Risk Characterization Ratio (RCR)	0.1
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalative, long-term - local
Exposure estimate	0.03 mg/m ³
Risk Characterization Ratio (RCR)	0.001
Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasiona controlled exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant aloves.	Effectiveness: 80 %

In case no suitable local exhaust ventilation is present:, Wear a suitable	
respiratory protection with adequate	
effectiveness .	
Exposure estimate and reference to i	ts source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC

gloves.

	TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.1429
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	40 μg/cm ²
Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	3.0042 mg/m ³
Risk Characterization Ratio (RCR)	0.1001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org	g/tra Please note that a modified version has been used (see

For scaling see: http: exposure estimates) rg,

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasional controlled exposure.	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	240 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	40 µg/cm ²	
Risk Characterization Ratio (RCR)	0.1429	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	

	Worker - dermal, long-term - local	
Exposure estimate	40 µg/cm ²	
Risk Characterization Ratio (RCR)	0.04	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	18.0250 mg/m ³	
Risk Characterization Ratio (RCR)	0.6008	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see		
exposure estimates)		

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of one hand (240 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.		
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate Risk Characterization Ratio (RCR)	20 μg/cm ² 0.0714	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	20 μg/cm ²	
Risk Characterization Ratio (RCR)	0.02	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	7.5104 mg/m ³	

 Risk Characterization Ratio (RCR)
 0.2503

 Guidance to Downstream Users
 Event Stream Users

 For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).	
Operational conditions		
-	acrylic acid	
Concentration of the substance	Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	60 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of one hand (240 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	20 µg/cm ²	
Risk Characterization Ratio (RCR)	0.0714	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local	
Exposure estimate	20 µg/cm ²	
Risk Characterization Ratio (RCR)	0.02	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see		
exposure estimates)		

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.
Operational conditions	
Concentration of the substance	acrylic acid

	Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.		
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	6.0083 mg/m ³	
Risk Characterization Ratio (RCR)	0.2003	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see		
exposure estimates)		

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor

Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Use suitable chemically resistant	Effectiveness: 80 %	
gloves.		
Exposure estimate and reference to	its source	
	ECETOC TRA v2.0 Worker; modified version, ECETOC	
	TRA modified version: Reduction factor for local exhaust	
Assessment method	ventilation (LEV) has not been used for the calculation of	
	dermal exposure estimates., ECETOC TRA modified	
	version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
	ECETOC TRA v2.0 Worker; modified version, ECETOC	
	TRA modified version: Reduction factor for local exhaust	
Assessment method	ventilation (LEV) has not been used for the calculation of	
	dermal exposure estimates., ECETOC TRA modified	
	version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	12.0167 mg/m ³	
Risk Characterization Ratio (RCR)	0.4006	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org	/tra Please note that a modified version has been used (see	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min		

Exposure estimate and reference to its source		
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	400 μg/cm ²	
Risk Characterization Ratio (RCR)	1.4286	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	400 μg/cm ²	
Risk Characterization Ratio (RCR)	0.4	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users		
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Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min		
Exposure estimate and reference to its source		
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of	

	dermal exposure estimates., ECETOC TRA modified	
	version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.02	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org	g/tra Please note that a modified version has been used (see	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers a dedicated facilities	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified	

	version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	4.5063 mg/m ³	
Risk Characterization Ratio (RCR)	0.1502	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Operational conditions	·	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Wear suitable respiratory protection.	Effectiveness: 90 %	
In case no respiratory protection is used:, Reduce duration of activity to less than 15 min		
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min		
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
_	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)		
Assessment method	ECETOC TRA v2.0 Worker; modified version Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users	1	
	ra Please note that a modified version has been used (see	

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4. Short title of exposure scenario

Polymer production SU3; SU8, SU9; ERC6a; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9; PC19

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Contributing exposure scenario		
Use descriptors covered	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
Operational conditions	•	
Annual amount per site	64,318,000 kg	
Minimum emission days per year Continuous	300	
Emission factor air	0.001 %	
Emission factor water	0.05 %	
Emission factor soil	0.01 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (2,000 m3/d
Exposure estimate and reference to		
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine water.	
Maximum amount of safe use	417,417 kg/d	
Risk from environmental exposure is dr	iven by marine sediment.	

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC1: Use in closed process, no likelihood of exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor

Exposed skin area	Palm of one hand (240 cm ²)	
Exposure estimate and reference to its source		
Assessment method	ECETOC TRA v2.0 Worker	
	Worker - dermal, short-term - local	
Exposure estimate	100 μg/cm²	
Risk Characterization Ratio (RCR)	0.3571	
Assessment method	ECETOC TRA v2.0 Worker	
	Worker - dermal, long-term - local	
Exposure estimate	100 μg/cm²	
Risk Characterization Ratio (RCR)	0.1	
Assessment method	ECETOC TRA v2.0 Worker	
	Worker - inhalative, long-term - local	
Exposure estimate	0.03 mg/m ³	
Risk Characterization Ratio (RCR)	0.001	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasional controlled exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.	
Exposure estimate and reference to its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
Exposuro octimoto	Worker - dermal, short-term - local
Exposure estimate Risk Characterization Ratio (RCR)	40 μg/cm² 0.1429
	ECETOC TRA v2.0 Worker; modified version, ECETOC
Assessment method	TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	40 μg/cm ²

Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	3.0042 mg/m ³
Risk Characterization Ratio (RCR)	0.1001
Guidance to Downstream Users	
Far appling apply http://www.applag.org	atra Diagon note that a madified version has been used (as

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC2: Use in closed, continuous process with occasional controlled exposure.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	40 μg/cm ²
Risk Characterization Ratio (RCR)	0.1429
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
-	Worker - dermal, long-term - local
Exposure estimate	40 µg/cm ²
Risk Characterization Ratio (RCR)	0.04
Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure estimate	Worker - inhalative, long-term - local 18.0250 mg/m ³
Risk Characterization Ratio (RCR)	0.6008
Guidance to Downstream Users	0.0000
	/tra Please note that a modified version has been used (see
exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses
	PROC3: Use in closed batch process (synthesis or

	formulation).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Risk Management Measures	· · · · · · · · · · · · · · · · · · ·
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.	
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
F <i>i i i</i>	Worker - dermal, long-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	7.5104 mg/m ³
Risk Characterization Ratio (RCR)	0.2503
Guidance to Downstream Users For scaling see: http://www.ecetoc.org/t exposure estimates)	ra Please note that a modified version has been used (see

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC3: Use in closed batch process (synthesis or formulation).	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	

Physical state	liquid
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Exposure estimate and reference to	its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 μg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable	

respiratory protection with adequate	
effectiveness .	
Exposure estimate and reference to	o its source
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	6.0083 mg/m ³
Risk Characterization Ratio (RCR)	0.2003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.ord	/tra Please note that a modified version has been used (see

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	60 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to its source		
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC	

	TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	200 µg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	12.0167 mg/m ³
Risk Characterization Ratio (RCR)	0.4006
Guidance to Downstream Users	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	400 µg/cm ²
Risk Characterization Ratio (RCR)	1.4286
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.

	Worker - dermal, long-term - local
Exposure estimate	400 µg/cm ²
Risk Characterization Ratio (RCR)	0.4
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC8a: Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min		
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
_	Worker - dermal, short-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.02	
Assessment method	ECETOC TRA v2.0 Worker; modified version	

	Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Risk Characterization Ratio (RCR)	0.5007
Guidance to Downstream Users	

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR) Assessment method	0.7143 ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally. Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)	0.2	
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	4.5063 mg/m ³	
Risk Characterization Ratio (RCR)	0.1502	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see	

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses

	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers a dedicated facilities
Operational conditions	
•	acrylic acid
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of both hands (480 cm ²)
Risk Management Measures	
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Wear suitable respiratory protection.	Effectiveness: 90 %
In case no respiratory protection is used:, Reduce duration of activity to less than 15 min	
Exposure estimate and reference to	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.7143
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
Function and in the	Worker - dermal, long-term - local
Exposure estimate	200 μg/cm ²
Risk Characterization Ratio (RCR)	0.2
Assessment method	ECETOC TRA v2.0 Worker; modified version Worker - inhalative, long-term - local
Exposure estimate	15.0208 mg/m ³
Exposure estimate	0.5007
Risk Characterization Ratio (RCR)	1 1

Contributing exposure scenario	
Use descriptors covered	SU3: Industrial uses PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
Operational conditions	
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %

Physical state	liquid	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of both hands (480 cm ²)	
Risk Management Measures		
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %	
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness ., Alternatively:, Reduce duration of activity to less than 15 min		
Exposure estimate and reference to		
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate	200 μg/cm ²	
Risk Characterization Ratio (RCR)	0.7143	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	200 µg/cm ²	
Risk Characterization Ratio (RCR)		
Assessment method	ECETOC TRA v2.0 Worker; modified version	
	Worker - inhalative, long-term - local	
Exposure estimate	15.0208 mg/m ³	
Risk Characterization Ratio (RCR)	0.5007	
Guidance to Downstream Users		
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see		
exposure estimates)		

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5. Short title of exposure scenario

Use in laboratories SU22; SU8, SU9, SU24; ERC1; PROC15; PC19, PC21

Control of exposure and risk management measures Contributing exposure scenario

Use descriptors covered	ERC1: Manufacture of substances	
Operational conditions		
Annual amount per site	288,000,000 kg	

Minimum emission days per year Continuous	300	
Emission factor air	0.00 %	
Emission factor water	0.30 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18,000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Other Factors: Environment	Indoor use.	
Risk Management Measures		
		Municipal STP
Assumed sewage treatment plant flow (2,000 m3/d
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0.514	
	Risk from environmental exposure is driven by marine	
	water.	
	1,869	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is dri	ven by marine sediment.	

Contributing exposure scenario	Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC15: Use a laboratory reagent.		
Operational conditions			
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %		
Physical state	liquid		
Duration and Frequency of activity	480 min 5 days per week		
Indoor/Outdoor	Indoor		
Exposed skin area	Palm of one hand (240 cm ²)		
Risk Management Measures			
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %		
Use suitable chemically resistant gloves.	Effectiveness: 80 %		
In case no suitable local exhaust ventilation is present:, Wear a suitable respiratory protection with adequate effectiveness.			
Exposure estimate and reference to its source			
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified		

	version: Use of gloves has been considered additionally.
	Worker - dermal, short-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.0714
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.
	Worker - dermal, long-term - local
Exposure estimate	20 µg/cm ²
Risk Characterization Ratio (RCR)	0.02
Assessment method	ECETOC TRA v2.0 Worker; modified version
	Worker - inhalative, long-term - local
Exposure estimate	3.0042 mg/m ³
Risk Characterization Ratio (RCR)	0.1001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/ exposure estimates)	tra Please note that a modified version has been used (see

Contributing exposure scenario		
Use descriptors covered	SU3: Industrial uses PROC15: Use a laboratory reagent.	
Operational conditions		
Concentration of the substance	acrylic acid Content: >= 0 % - <= 100 %	
Physical state	liquid	
Duration and Frequency of activity	240 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposed skin area	Palm of one hand (240 cm ²)	
Risk Management Measures		
Use suitable chemically resistant gloves.	Effectiveness: 80 %	
Exposure estimate and reference to	its source	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, short-term - local	
Exposure estimate Risk Characterization Ratio (RCR)	20 μg/cm ² 0.0714	
Assessment method	ECETOC TRA v2.0 Worker; modified version, ECETOC TRA modified version: Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates., ECETOC TRA modified version: Use of gloves has been considered additionally.	
	Worker - dermal, long-term - local	
Exposure estimate	20 µg/cm ²	
Risk Characterization Ratio (RCR)	0.02	
Assessment method	ECETOC TRA v2.0 Worker; modified version	

	Worker - inhalative, long-term - local
Exposure estimate	18.0250 mg/m ³
Risk Characterization Ratio (RCR)	0.6008
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see	
exposure estimates)	

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