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

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		
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	1,869 kg/d	
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 exposure is driven by marine water.
Maximum amount of safe use	1,869 kg/d
Risk from environmental exposure is driven 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

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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1001
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 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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 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	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1502
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 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
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 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 cm²)
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/cm²
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/cm²
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/m³
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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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.
Maximum amount of safe use	417,417 kg/d
Risk from environmental exposure is driven 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

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.
	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/tra Please note that a modified version has been used (see exposure estimates)	

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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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 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/cm²
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/cm²
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/m³
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 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	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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	

exposure estimates)

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	
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 cm²)
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/cm²
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/cm²
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/m³
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 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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1502
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 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 cm²)

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/cm²
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/cm²
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/m³
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 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 cm²)
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/cm²
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/cm²
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/m³
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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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

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 (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	ERC6c: Industrial use of monomers for manufacture of thermoplastics
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 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	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 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
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 (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	ERC6c: Industrial use of monomers for manufacture of thermoplastics
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 (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	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 (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	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 (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	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 cm²)
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1001
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 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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³

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 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	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposed skin area	Palm of one hand (240 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 exposure estimates)	

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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1502
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 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 cm²)
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/cm²
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/cm²
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/m³

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 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/tra Please note that a modified version has been used (see exposure estimates)	

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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

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.	
Maximum amount of safe use	417,417 kg/d	
Risk from environmental exposure is driven 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 cm²)
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/m³
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 cm²)
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/cm²
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/cm²

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/m³
Risk Characterization Ratio (RCR)	0.1001
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 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 cm²)
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/cm²
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/cm²
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/m³
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	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/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	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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 exposure estimates)	

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 cm²)
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/cm²
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/cm²
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/m³
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 cm²)
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/cm²
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/cm²
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/m³
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 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 cm²)
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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1502
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

	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
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 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 cm²)
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/cm²
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/cm²
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/m³
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	
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	1,869 kg/d
Risk from environmental exposure is driven by marine sediment.	

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/cm²
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/cm²
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/m³
Risk Characterization Ratio (RCR)	0.1001
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 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 cm²)
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/cm²
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/cm²
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/m³
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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