

Exposure Scenario for Industrial application of paints, coatings and other mixtures containing Ethyl Acetate by way of spraying		
Systematic title based on use descriptor	SU3 PROC1, PROC2, PROC7, PROC8a, PROC8b ERC4	
Processes, tasks, activities covered	Indoors painting, application of coatings, adhesives, polishes/cleaners, air care products and other mixtures containing Ethyl Acetate by automated spraying techniques in factories or comparable industrial settings. Includes material mixing, transfer and storage	
Assessment Method	Ecetoc TRA integrated model version 2	
Exposure Scenario		
Operational conditions and risk management measures		
Process category: Industrial spraying (air dispersive techniques) Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls; in case of coating, overspray may lead to waste water and waste Environmental release category: Industrial use of processing aids in a batch process, not becoming part of an article using dedicated or multi-purpose equipment, either technically controlled or operated by manual interventions.		
Number of sites using the substance: Substance widely used.		
Control of workers exposure		
Product characteristic (including package design affecting exposure)	Physical state	liquid
	Concentration of substance in product	Up to 25%. (up to 100% for handling and storage (PROCS 1, 2, 8a and 8b))
	Vapour pressure of substance	9,8 kPa
Amounts used	n.a. in tier1 TRA model	
Frequency and duration of use/exposure	Frequency of exposure (weekly)	> 4 Days/week
	Frequency of exposure (annual)	240 Days/year (5 days per week operation)
	Duration of exposure	> 4 Hours/day 1-4 h/d (PROC 8a, PROC8b)
Human factors not influenced by risk management	Potentially exposed body parts	Two hands and forearms
	Exposed skin surface	1500 cm ²
Other given operational conditions affecting workers exposure	Room size	n.a.
	Setting (indoor/outdoor)	Indoors. PROC 1 outdoors
Technical conditions and measures at process level (source) to prevent release	Concentration substance in the product used	Limit the concentration of the substance in the product used to 25%.
Technical conditions and measures to control dispersion from source towards the worker	Ventilation	LEV (efficiency rate 95%) when indoors
Organisational measures to prevent /limit releases, dispersion and exposure	Storage and transfer: Handle substance within a predominantly closed system provided with extract ventilation. In the absence of LEV, do not carry out operation for more than 1 hour without respiratory protection (PPE). Provide extract ventilation to points where emissions occur. Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.	
Conditions and measures related to personal protection, hygiene and health evaluation	PPE: (if required) Respiratory Protection (e.g. respirator conforming to EN140 with Type A filter or better)	Condition: If no vented laminar spray booth available. Spray application under such conditions should be for <1 hour.
	PPE: Wear chemically resistant gloves. Butyl rubber gloves offer good protection.	
Control of environmental exposure		
Product characteristics	Physical state	liquid
	Concentration of substance in product	Up to 25%
Amounts used	Daily at point source	n.a.
	Annually at point source	1,000 t/year (maximum in worst case)
	Annually total	10,000 t/year
Frequency and duration of use	Pattern of release	Continuous 300 days per year
Environment factors not	Flow rate of receiving surface water	18,000m ³ /day (default)

influenced by risk management		
Other given operational conditions affecting environmental exposure	Processing setting (indoor/outdoor)	Indoor
	Processing temperature	n.a.
	Processing pressure	n.a.
Technical conditions and measures at process level (source) to prevent release	Do not discharge into sewers or drains. Use appropriate emission abatement equipment from LEV systems if required by local legislation. Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Use containment measures to reduce fugitive emissions. Comply with all local legislative requirements on permitted local emission limits. These may require the use of technical measures such as catalytic or thermal oxidation to reduce emissions to air.	Efficacy: >80% minimum
	No specific onsite measures required.	Efficacy: n.a.
Organizational measures to prevent/limit release from site	Do not release wastewater directly into environment.	Wastewater release into municipal STP.
Conditions and measures related to municipal sewage treatment plant	Size of STP	> 2000 m ³ /day
	Degradation efficacy	87%
	Sludge treatment (disposal or recovery)	Disposal or recovery
Conditions and measures related to treatment of waste	Hazardous waste incineration or dispose for use in recycled fuels	

Exposure estimation

Workers exposure estimation is calculated with Ecetoc TRA model v2. Activity resulting in maximum exposure shown. All other activities result in lower exposure..

Workers exposure	Exposure estimate	DNEL	Comment
Inhalation (mg/m ³)	55,06	730	Critical PROC 7
Dermal (mg/kd/day)	2,14	63	Critical PROC 7
Combined (mg/kg/day)	10,01	63	Critical PROC 7

Environmental exposure estimation is based on Ecetoc TRA model v2 including the data from TGD A&B tables (MC Ib; IC 14; UC 48, fraction main source 0,1)

Release times per year (day/year)	300	Local release to air (kg/day)	60
Fraction used at main local source	0,1	Local release to waste water (kg/day)	6,7
Amount used locally (kg/day)	333	Local release to soil (kg/day)	0,3
Environmental exposure	PEC	PNEC	Comment
In STP (mg/l)	0,393	650	
In local freshwater (mg/l)	0,042	0,26	
In local freshwater sediment	0,056 (mg/kg)	1.25 (mg/kgwwt)	
In local soil	0,010 (mg/kg)	0,24 (mg/kgwwt)	
In local marine water (mg/l)	0,004	0,026	
In local marine sediment	0,005 (mg/kg)	0,125 (mg/kgwwt)	
Total daily intake via local environment (mg/kgdw/d)	0,0015	23,8 (ppm)	

Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The workers exposure and environmental emissions have been evaluated using Ecetoc TRA integrated tool version 2. If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:

$PEC_{corrected} = PEC_{calculated} * (\text{local emission fraction}) * (\text{local WWTP flow rate fraction}) * (\text{local river flow rate fraction}) * (\text{local STP efficiency fraction})$

$PEC_{corrected} = 0.04 * (\text{local emission [kg/day]} / 6,7) * (2000 / \text{local WWTP flow rate [m3/day]}) * (18000 / \text{local river flow rate [m3/day]}) * ((1 - \text{local WWTP efficiency})/0.13)$

Additional good practice advice beyond the REACH CSA

Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH

Use specific measures expected to reduce the predicted exposure beyond the level estimated based on the exposure scenario when possible.