

Exposure assessment in Chesar



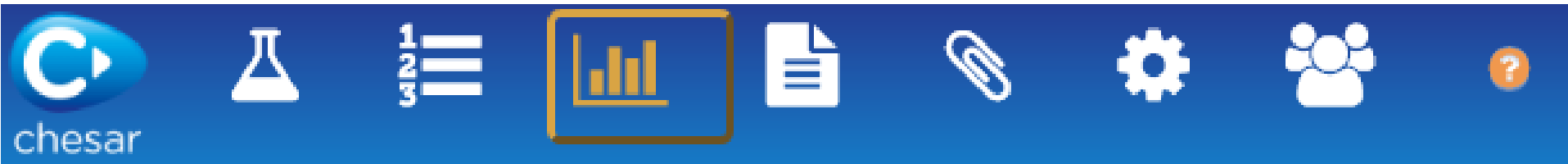
chesar

21 June 2016

Outline

- Introduction
- Contributing scenarios (conditions of use)
- Release/exposure estimation
- Risk characterisation
- Environmental assessment for aggregated sources

Introduction



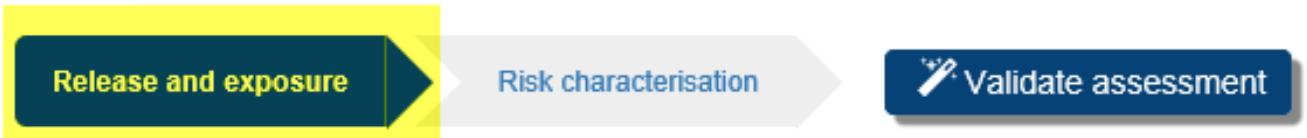
- Exposure assessment is to be carried out in Box 3 by selecting a contributing activity in the life cycle tree
 - Both quantitative and qualitative assessment are carried out in Box 3
- When selecting a contributing activity in the life cycle tree, on the right pane you can see:
 - The (release and) exposure tab is selected, containing:
 - Conditions of use
 - Release
 - Exposure estimates
 - Daily intake in food items estimated by EUSES
 - The risk characterisation tab
 - A “validate assessment” button

* in green, specific to contributing activity for the environment

Life cycle tree

Expand/
collapse

- Environmental assessm...
- Manuf. (320 t) : Man...
- ERC 1: Manufa...
- PROC 1: Close...
- PROC 8a: Main...
- Formul. (320 t) : For...
- ERC 2: Form...**
- PROC 8b: Rec...
- PROC 3: Mixing...
- PROC 5: Mixing...
- PROC 8a: Tran...
- PROC 8b: Tran...
- PROC 9: Filling...
- PROC 8a: Main...



Conditions of use



Helptext

Conditions based on

can be expanded or collapsed

Releases



Exposure estimates



Daily intake via food item estimated by EUSES 2.1.2





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Selected substance: ECHA substance Selected CSA: CSR example

Add default exposure datasets ▾

Bulk edit mode ▾



- Environmental assessme...
- Manuf. (320 t) : Man...**
 - ERC 1: Manufac...
 - PROC 1: Closed...
 - PROC 28: Maint...
- Formul. (320 t) : Liqu...**
 - ERC 2: Formul...**
 - PROC 8b: Recei...
 - PROC 3: Mixing...
 - PROC 5: Mixing...
 - PROC 8a: Trans...
 - PROC 8b: Trans...
 - PROC 9: Transf...
 - PROC 28: Equip...
- Market (200 t) : Coati...**

Release and exposure

Risk characterisation

Validate assessment

Conditions of use

Conditions based on

Releases

Exposure estimates

Daily intake via food item estimated by EUSES 2.1.2



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Conditions of use

- Conditions of use can be:
 - Manually selected
 - Pre-populated by harmonised elements:
 - SPERCs for the environment
 - SCEDs or ECETOC TRA subcategories for consumer
 - (SWED for workers not yet implemented)

+ Add new condition of use

+ Add as good practice

E-W-1 : Product (article) characteristics

E-W-2 : Amount used, frequency and duration of use (or from service life)

Daily use amount at site \leq tonnes/day 

Annual use amount at site \leq tonnes/year 

E-W-3 : Technical and organisational conditions and measures

E-W-4 : Conditions and measures related to biological sewage treatment plant

Biological STP Wat. effect.. : % 

Discharge rate of STP \geq m³/d 

Application of the STP sludge on agricultural soil 

E-W-5 : Conditions and measures related to external treatment of waste (including article waste)

Built-in conditions of use present by default

- For the environment:
 - Use amount
 - Biological STP
 - Receiving surface water flow rate
 - Particular considerations for waste treatment operations
- For workers:
 - Percentage (w/w) of substance in mixture
 - Physical form of the used product
 - Duration of activity
 - Place of use
 - Operating temperature
- For consumers:
 - Percentage (w/w) of substance in mixture
 - Physical form of the used product

Selecting conditions of use

- When the conditions of use are based on a SPERC or a SCED, those should be present in your library
 - Rules are implemented to filter out relevant SPERC/SCED (ERC, PC,...)

Conditions of use ?

Conditions based on

Selected SCED

SCED name:
SCED code:

- Manual selection
- SCED**
- TRA Consumers product/article subcategory

- When the conditions of use are manually selected, you have to select those you want to add in your contributing scenario from your library

+ Add new condition of use

+ Add as good practice

Use in rigorously contained system

- Uses in rigorously contained system:
 - With minimisation of release
 - With strict control for manual intervention
can be flagged
- Such information is exported to IUCLID and can be used by the authorities when prioritising substances for further regulatory actions (low priority)
- Description of the conditions of use is key
- Residual release/exposure should be provided

Conditions of use

- Rigorously contained system with strict control for manual interventions**
(Applies to all contributing scenarios of this exposure scenario)

Description of non-technical
means for strict control





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Bulk edit mode ▾



Environmental assessme...

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Market (200 t) : Coati...

Release and exposure

Risk characterisation

Validate assessment

Conditions of use



Conditions based on

Manual selection ▾

Releases



Exposure estimates



Daily intake via food item estimated by EUSES 2.1.2

Release estimation (environment)

- Four methods for release estimation are available:
 - SPERC-based if SPERC is selected for the conditions of use
 - ERC-based
 - Based on an estimated release factor
 - Based on a measured release rate

Release route	Estimation method
Water	ERC based Estimated release factor Measured release rate



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- PROC 8b: Trans...



Conditions of use

Exposure estimates



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Exposure datasets (estimates)

- Per protection target/route and type of effect exposure estimates are required for quantitative risk characterisation and may be useful for qualitative risk characterisation
- Three exposure estimation methods:
 - Built-in tool: exposure calculated in Chesar (ECETOC TRA workers and consumers, EUSES)
 - External tool: exposure estimates, explanations if relevant, and related conditions of use are manually reported or are imported in a Chesar format
 - Measured data: manually reported in Chesar
- Risk characterisation ratios (RCR) are displayed

Exposure estimates ?

Add new exposure dataset ▼ Delete dataset ▼ Import external tool dataset

TRA Workers 3.0 Method ▼ Status ▼

External tool

Measured data



Logged in as admin (logout)
About Chesar

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Selected substance: ECHA substance Selected CSA: CSR example

Add default exposure datasets ▾

Bulk edit mode ▾



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Exposure

Risk characterisation

Validate assessment

Conditions of use

Exposure estimates



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The “validate assessment” button

- Provides information on exposure datasets obtained through built-in tools, such as:
 - Substance properties boundaries supported by the tool
 - Explanations why no exposure is provided due to applicability domain of the tool





Logged in as admin (logout)
About Chesar

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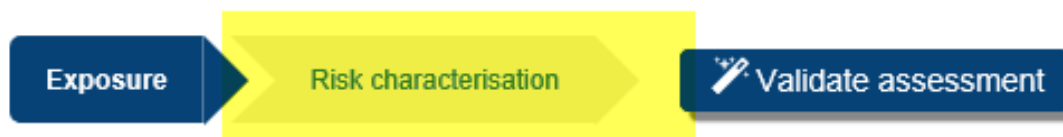
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Conditions of use





Exposure estimates



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Risk characterisation

- The risk characterisation type [per protection target/route and type of effect] depends on the hazard conclusion (imported from IUCLID)
 - Risk characterisation icon  
- For quantitative risk characterisation: RCR calculated on the basis of previously reported main exposure
- For qualitative risk characterisation
 - “Risk controlled flag” to be set (after checking conditions of use and providing explanations)
 - For local effect on skin and eye, can be controlled by concentration in mixture (“concentration limit” set in Box 1, in the tab Hazard conclusion and scope of assessment)



Risk characterisation

Route, type of effect	Hazard conclusion	Risk characterisation type	RCR	Risk controlled
Inhalation				
Inhalation, systemic, long term	DNEL (Derived No Effect Level) 24.7 mg/m³	Quantitative	0.101	<input checked="" type="checkbox"/>
Inhalation, systemic, short term	No hazard identified	Not needed		
Inhalation, local, long term	Low hazard (no threshold derived)	Qualitative		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Inhalation, local, short term	Low hazard (no threshold derived)	Qualitative		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Dermal				
Dermal, systemic, long term	DNEL (Derived No Effect Level) 7 mg/kg bw/day	Quantitative	0.039	<input checked="" type="checkbox"/>
Dermal, systemic, short term	No hazard identified	Not needed		
Dermal, local, long term	Low hazard (no threshold derived)	Qualitative		<input checked="" type="checkbox"/>
Dermal, local, short term	Low hazard (no threshold derived)	Qualitative		<input checked="" type="checkbox"/>
Eye				
Eye, local	Low hazard (no threshold derived)	Qualitative		<input checked="" type="checkbox"/>
Combined routes				
Combined, systemic, long term		Quantitative	0.14	<input checked="" type="checkbox"/>

manually
set flag

controlled by
concentration

Environmental assessment for aggregated sources

- Regional assessment: taking into account all sources:
 - default calculated with EUSES
 - Possibility to use other data sets
- Assessment for widespread uses: local assessment for all widespread uses (read only)

Environmental assessment for aggregated sources

Assessment ?

Regional assessment

Add new exposure dataset ▾

Remarks on risk characterisation for regional concentrations:

Assessment for widespread uses

Exposure values are estimated by EUSES 2.1.2

Compartment	Local PEC / Exposure	RCR
Environmental exposure estimates ▾		
Fresh water ▾	1.12E-4 mg/L	0.011 ✓
Sediment (freshwater) ▾	0.12E-3 mg/kg dw	0.011 ✓