

Exposure scenarios, condities en beheersmaatregelen bepaald met ART



Systematic title based on use descriptor	SU: 8, 9 PROC: 8b
Name of contributing environmental scenario 1 and corresponding ERC	ERC1
Name(s) of contributing worker scenarios and corresponding PROCs	
Contributing exposure scenario 1 controlling worker exposure for PROC 8a	
Name of contributing exposure scenario	Packaging
	Packaging of the product Transfer of liquid product Falling liquids
Product characteristic	
Liquid, Up to 15%, temperature up to 65 Celsius	
Amounts used	Transfer of liquid product with flow of 10 - 100 l/minute
Frequency and duration of use/exposure	Up to 2 hours, daily exposure
Human factors not influenced by risk management	A breathing volume of 10 m ³ is assumed which is default for light work activity. A default value of 70 kg is assumed as body weight for workers.
Other given operational conditions affecting workers/consumers exposure	Indoors, Large workrooms only
Conditions and measures at level of article production to prevent release during service life	Condition and measures at level of article production to prevent release during service life
Not Relevant	
Technical conditions and measures at process level (source) to prevent release	
Medium level containment	
Technical conditions and measures to control dispersion from source towards the worker	
Fixed capturing hoods	
Organizational measures to prevent /limit releases, dispersion and exposure	
Partial segregation with ventilation and filtration of recirculated air	
Conditions and measures related to information and behavioural advice to consumers	
Not Relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	
Not relevant	
Additional good practice advice (for environment) beyond the REACH CSA	

Inhoud

- Even opfrissen:
 - “Exposure Scenario”
 - “ART”
- Laat eens zien, zo’n ART-work!
- Wat moet ik hiermee?
- Hoe komen ze erbij?!
- Waarom deze waarden?
- Past dit bij mijn situatie?
- Is dit maar een schets of gehouwen in steen?



“Exposure Scenario”

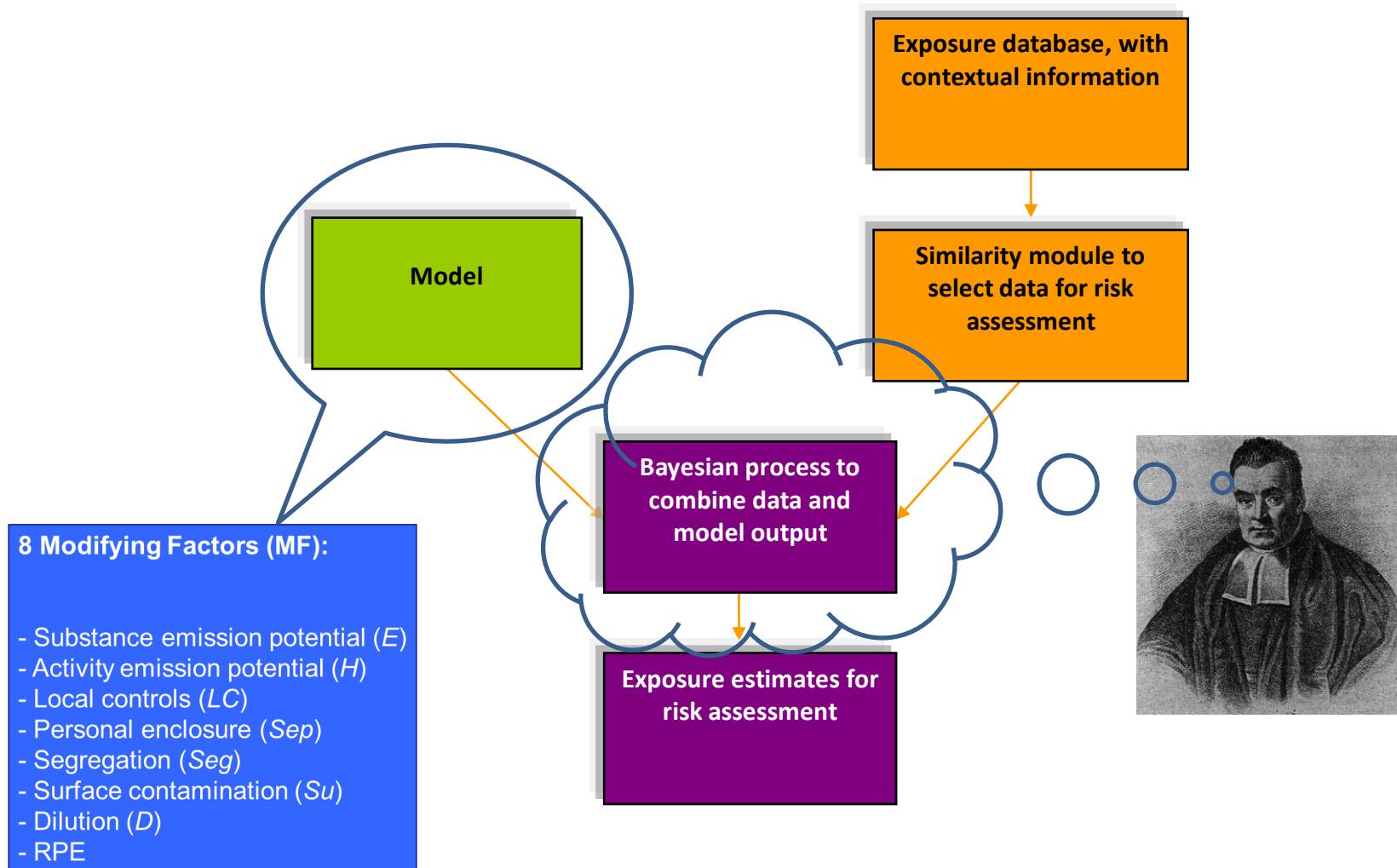
– wat was dat ook al weer?

- Gebaseerd op risicobeoordeling
 - Vergelijking DNELs en blootstelling
- Condities en beheersmaatregelen

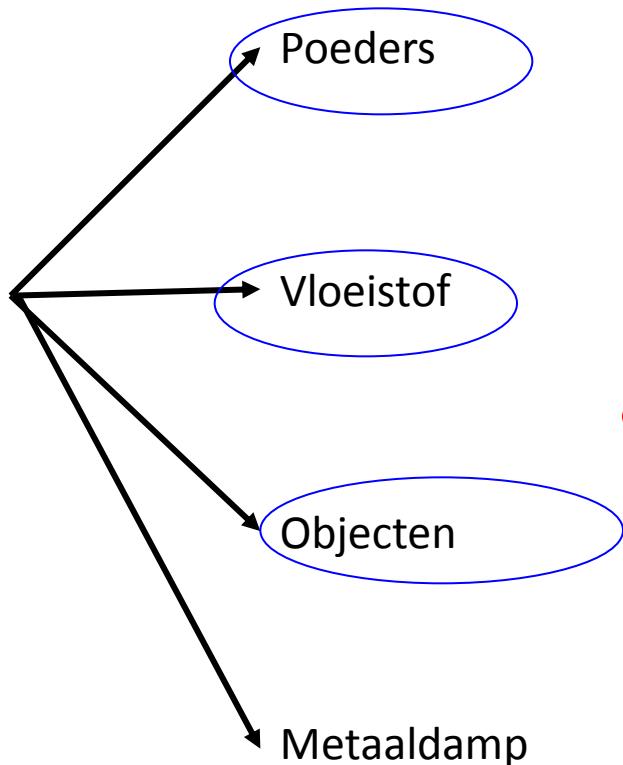
? en ?

- Veilig gebruik
- Per stof of product
- Wettelijk bindend

“ART” – wat was dat ook al weer?



Activity Emission Potential



Select Activity Class																	
<input checked="" type="radio"/> Spray application of liquids																	
<input type="radio"/> Hot solid handling																	
<input type="radio"/> Hardening of solid objects																	
<input type="radio"/> Moving, mixing, spreading liquids or powders																	
<input checked="" type="radio"/> Fall, breaking and abrasion of solid objects (e.g. pellets)																	
<input type="radio"/> Fracturing and abrasion of solid objects (e.g. powder)																	
<input type="radio"/> Corrosion of granular materials																	
<input type="radio"/> Impact of solid objects																	
<input type="radio"/> Burning of solids																	
<table border="1"> <thead> <tr> <th colspan="2">Select Activity Class</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="radio"/> Spray application of liquids</td> <td></td> </tr> <tr> <td><input type="radio"/> Activities with baths, contaminated objects or spreading liquids</td> <td></td> </tr> <tr> <td><input type="radio"/> Application of liquids with speed pumps or tools</td> <td></td> </tr> <tr> <td><input type="radio"/> Hot solid handling</td> <td></td> </tr> <tr> <td><input type="radio"/> Agitation</td> <td></td> </tr> <tr> <td><input type="radio"/> Fall, breaking and abrasion of solid objects (e.g. pellets)</td> <td></td> </tr> <tr> <td><input type="radio"/> Abrasive blasting</td> <td></td> </tr> </tbody> </table>		Select Activity Class		<input checked="" type="radio"/> Spray application of liquids		<input type="radio"/> Activities with baths, contaminated objects or spreading liquids		<input type="radio"/> Application of liquids with speed pumps or tools		<input type="radio"/> Hot solid handling		<input type="radio"/> Agitation		<input type="radio"/> Fall, breaking and abrasion of solid objects (e.g. pellets)		<input type="radio"/> Abrasive blasting	
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- Transferring more than 1000 kg/minute (e.g. large scale transfer with big bags)
- Transferring 100 – 1000 kg/minute
- Transferring 10 – 100 kg/minute
- Transferring 1 – 10 kg/minute
- Transferring 0.1 – 1 kg/minute
- Transferring 10 – 100 gram/minute
- Transferring less than 10 gram/minute (e.g. very small scale weighing (fine adjustments) and scoping in laboratory)

Routine transfer

Careful transfer involves workers showing attention to potential danger, error or harm and carrying out the activity in a very exact and thorough (or cautious) manner e.g. careful weighing in laboratory



What is the drop height?

Drop height > 0.5 m

Drop height < 0.5 m or transfer using a pipe

A work of ART - 1

Reference number	Contributing exposure scenario 1 controlling worker exposure for PROC 4		
Free short title	Workers related free short title	Manufacturing of XXXXX; XXXXX solutions and use of batch and other processes.	
Systematic title based on use descriptor	Use descriptor covered	SU3, PROC 4	
Processes, tasks, activities covered	<p>SU 3,8,9,10,12 PROC 1,2,3,4,5,6,8a,8b,9,14 ... Use in batch or other process exposure arises (PROC 4)</p>	<p>PROC 4: Use in batch and other processes (synthesis) with opportunity for exposure PROC 4 consists of three types of activities:</p> <ul style="list-style-type: none"> • <i>dedicated transfer</i> activities • <i>closed process</i> activities • <i>activities near open parts of the process</i> <p>This contributing scenario consists of a combination of these three activities.</p>	
Assessment	Method	<p>Dermal exposure: ECETOC TRA v2 (with modifications)</p> <p>Inhalation exposure: ART</p>	
9.1.1.2. Operational conditions and risk management measures	<p>Product characteristics</p> <p><i>Dedicated transfer:</i> Liquid, XXXXX (Y% in water). The finalized product is transferred to storage or further processing.</p> <p><i>Closed process:</i> Vapour, XXXXX 100%. Pure XXXXX is present within at least parts of the closed process equipment</p> <p>Amounts used</p> <p><i>Dedicated transfer:</i> > 1000 L/min</p> <p><i>Closed process:</i> Not relevant</p> <p>Frequency and duration of use/exposure</p> <p><i>Dedicated transfer and open parts of the process:</i> Daily, up to 60 min.</p> <p><i>Closed process:</i> Daily, up to 360 min.</p> <p>Human factors not influenced by risk management</p> <p>A breathing volume of 10 m³/d is assumed which is default for light work activity. A default value of 70 kg is assumed as body weight for workers.</p> <p>Other given operational conditions affecting workers exposure</p> <p><i>Dedicated transfer, closed process and open parts of the process:</i></p> <p>Indoor, large industrial workrooms (300 m³)</p> <p>Hot process activities (50-150 °C)</p>		

A work of ART - 2

Technical conditions and measures at process level (source) to prevent release

Dedicated transfer:

- Submerged loading

Dedicated transfer and closed process:

- Medium level of containment (99% reduction), consisting of:
 - Physical containment or enclosure of the source of emission.
 - The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel. Examples include sealing heads, transfer containers and multiple o-rings. Inflatable packing head with continuous liner ensures a seal is maintained during the transfer and the continuous plastic liner prevents direct contact with the product. The correct type of tie off must be used.

Open parts of the process:

- Open surface < 0.1 m²

Technical conditions and measures to control dispersion from source towards the worker

Dedicated transfer, closed process and open parts of the process:

General ventilation at least 3 air changes per hour

Dedicated transfer: transfer system is provided with a vapour recovery system (reduction 80%)

Open parts of the process: Local exhaust ventilation (fixed capturing hoods, 90% reduction) at potential emission points.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure that the process activities *dedicated transfer* and *open parts* are limited to at most 60 minutes.

Ensure that the *closed process* activities are limited to at most 360 min.

Conditions and measures related to personal protection, hygiene and health evaluation

Dedicated transfer, closed process and open parts of the process:

Wear suitable eye protection if exposure to the eyes may be possible, e.g. due to splashing, working overhead or when the face of the worker needs to be close to the source.

Process activities *open parts of the process* and *dedicated transfer*: Stringent use of protective gloves with specific worker training and management supervision to minimize exposure (reduction factor 98%).

Closed process: Stringent use of protective gloves with specific worker training and management supervision to minimize exposure (reduction factor 98%) at activities that may lead to contact with contaminated surfaces.

Open parts of the processs: Use of respiratory protective equipment (95% reduction).

Dedicated transfer: Use of respiratory protective equipment (90% reduction).

A work of ART - 2

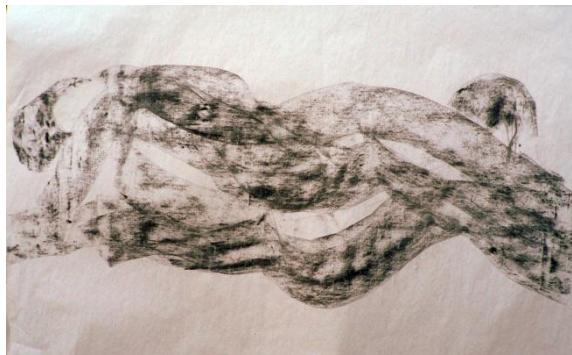
- **En nu leesbaar, alsjeblieft!**

- Drie activiteiten in één schatting
- Produkt: deels gasvormig, deels in oplossing in water
- Hoeveelheid per uur
- Duur → tijdgewogen middelen
- Andere condities
 - Grootte werkruimte
 - Temperatuur bij gebruik
- Technische aspecten
 - Overslag: submerged loading
 - Overslag en gesloten proces: medium level containment
 - Open delen: open surface area



Wat moet ik hiermee?

- Exposure Scenario is niet vrijblijvend
 - In principe verplicht
 - ‘Scaling’ is mogelijk
 - Duur “open parts of process” duidelijk korter?
 - → oppervlak open mag groter of LEV of RPE met lagere effectiviteit is mogelijk
 - Ook ‘condities’ onderdeel van verplichting



Hoe komen ze erbij?

- *“Dit lijkt wel uit de lucht gegrepen”*
 - Zo weinig mogelijk beperken
 - Liever kleinere ruimte dan grotere
 - Wel realistisch en veilig
 - Relatie industrie – ruimtegrootte en ventilatie
 - Niet cijfermatig onderbouwd
 - Default waarden
 - Industrie: minstens 300 m³ en 3 ACH

- An indoor work area is assumed which is worst case compared to an outdoor work area.
- The room size of industrial settings was set on 300 m³ reflecting a reasonable worst-case size for large rooms and process halls.
- A ventilation rate of 3 air changes per hour is assumed for industrial settings reflecting proper general ventilation in this type of industry.
- The room size and ventilation rate of professional settings was set on 30 m³ and 1 air change per hour (ACH) respectively, reflecting a reasonable situation for professional settings.
- Regarding surface contamination, a default level is used. The default value reflects a situation with no demonstrable and effective housekeeping practices and processes not fully enclosed. This is a conservative option for a parameter of minor importance in calculation of the exposure value.

Waarom deze waarden?

- Defaults voor diverse condities
 - Ruimtegrootte, ventilatie, e.d.
 - Condities vaak niet veranderbaar
 - Consistentie in schattingen nodig
- Redelijke, niet te veel beperkende aannames
 - Maar veilig!



Product characteristic

Liquid, Diluted Substance (5%). Medium viscosity (oil-like).

Amounts used

Application rate of 0.3-3 L/min

Frequency and duration of use/exposure

assumed as body weight for workers. A default value of 620 cm² is assumed as hand surface area.

Other given operational conditions affecting workers/consumers exposure

Indoor, large industrial work location (300 m³). Surface spraying with high compressed air use. Downward spray direction. Process temperature range 15-25 °C.

Past dit bij mijn situatie?

- Altijd checken!
- Past niet:
 - Hoger gebruiksvolume
 - Kleinere ruimte
 - Mindere ruimteeventilatie
 - Heel andere beheersmaatregel



→ Alles wat tot hogere blootstelling leidt
→ Rol voor AH!
→ Maar: ES in de keten (eSDS) bevat niet altijd alle uitleg!

Als de schoen niet past

- Koop een grotere schoen
 - Zoek een product met minder beperkende voorwaarden
- Laat de schoen aanpassen
 - Vraag om een aangepast scenario
- Pas de schoen zelf aan
 - Maak zelf een passend scenario
 - Bijvoorbeeld met ART



Product characteristic
Liquid, Diluted Substance (5%). Medium viscosity (oil-like).
Amounts used
Application rate of 0.3-3 L/min
Frequency and duration of use/exposure
Up to 480 min, daily exposure



Product characteristic
Liquid, Diluted Substance (2.5%). Medium viscosity (oil-like).
Amounts used
Application rate of 10-30 L/min
Frequency and duration of use/exposure
Up to 360 min, daily exposure

Human factors not influenced by risk management

Is dit maar een schets? Of gehouwen in steen?

- Nee: een object in enigszins plastisch materiaal!
- Het moet.....
..... Maar je kunt het aanpassen!

