

Exponeringsbedömning i REACH

SFT Årsmöte 2010-03-19

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Perstorp och REACH

- Tillverkare, importör och nedströms användare
- 2010 deadline:
 - 16 LEAD registreringar
 - 31 INVOLVED registreringar
 - ~100 produkter
- Vissa substanser är undantagna – läkemedel, livsmedel, foder, avfall
- Polymerer är undantagna för vissa delar

Krav

Chemical Safety Assessment (CSA):

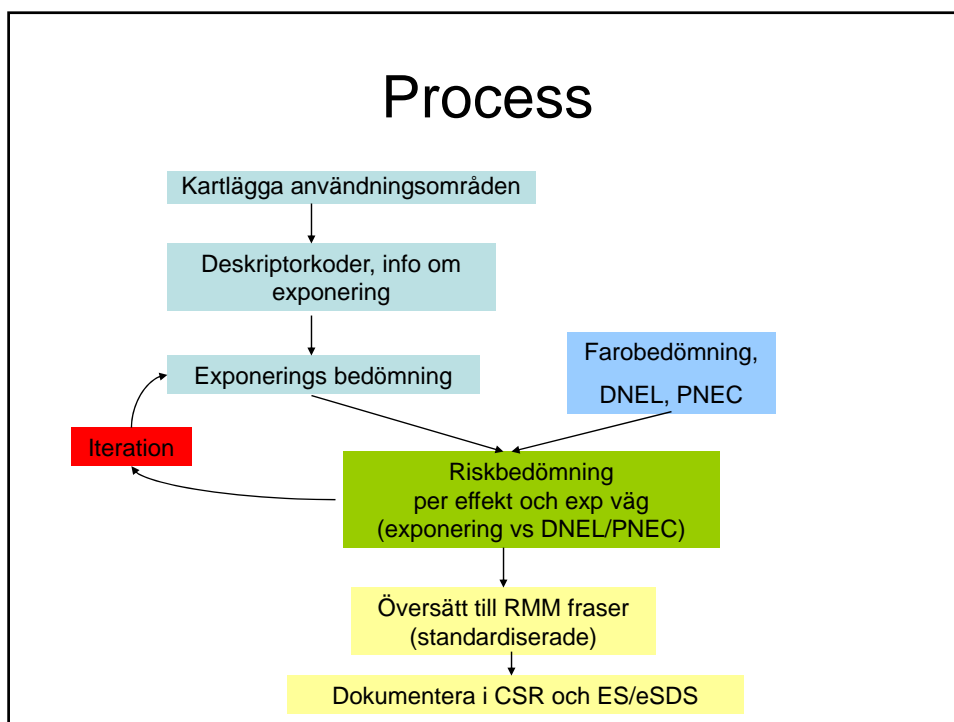
- Om >10 ton/år

och

Exposure Assessment/Scenario (EA/ES):

- Om klassificerad som farlig
- Eller PBT/vPvB
- Eller tillstånds process oavsett volym

Process



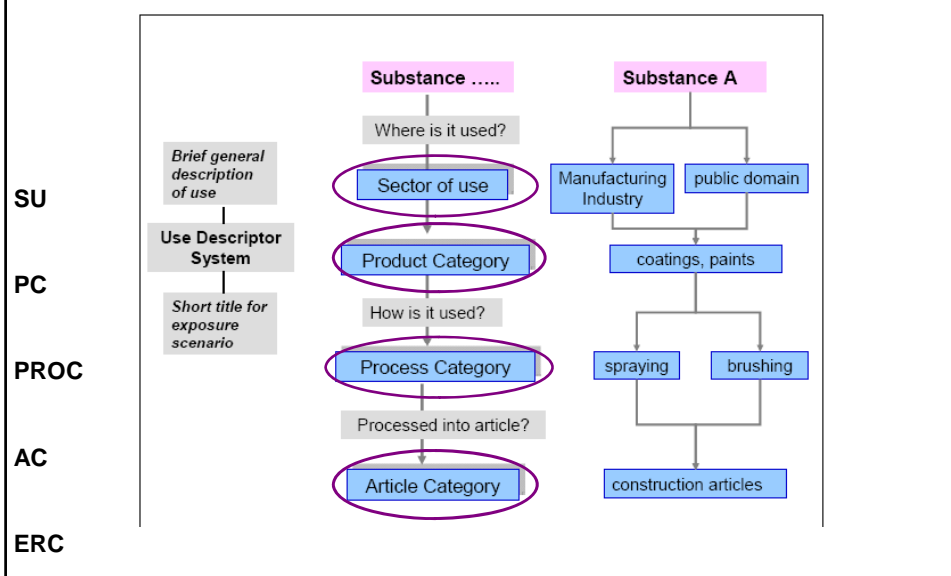
Kartläggning av användnings områden

Input från CEFIC bransch organisationer och kunder

Industrial manufacturing of polymers (alkyds, saturated & unsaturated polyesters, polyamides etc)

Short description of process or activity	Process activity	Descriptors				
		SU	PC	PROC	AC	ERC
Receipt and storage of bulk deliveries.	1	3	32	8	n/a	5
Assembly and charging	2	3	32	8	n/a	6C
Receipt and storage of packaged goods deliveries, outdoor and indoor	3	3	32	8	n/a	6D
Receipt and storage of packaged goods deliveries, outdoor and indoor	4	3	32	3	n/a	5
Raw material assembly and charging via pipeline from bulk storage outdoor or indoor	5	3	32	3	n/a	6C
Production of resins including sampling. Closed process, no likelihood of exposure	6	3	32	3	n/a	6D
Production of resins including sampling. Closed continuous process.	7	3	32	4	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	8	3	32	4	n/a	6C
Production of resins including sampling. Batch process. Laboratory use at QC and R&D	9	3	32	4	n/a	6D
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	10	3	32	1	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	11	3	32	1	n/a	6C
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	12	3	32	1	n/a	6D
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	13	3	32	1	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	14	3	32	1	n/a	6C
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	15	3	32	1	n/a	6D
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	16	3	32	2	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	17	3	32	2	n/a	6C
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	18	3	32	2	n/a	6D
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	19	3	32	3	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	20	3	32	3	n/a	6C
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	21	3	32	3	n/a	6D
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	22	3	32	4	n/a	5
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	23	3	32	4	n/a	6C
Production of resins including sampling. Closed batch process. Laboratory use at QC and R&D	24	3	32	4	n/a	6D


Deskriptor koder



Metoder för exponeringsbedömning

- Mätningar
(arbetsmiljö, luft, vatten)
- Uppskattningar
- Modeller

Perstorp enkät om användning och exponering

Template for Developing Specific Exposure Scenarios (SES)					
DESCRIPTOR SYSTEM	No.	Information item	Available options	Scenario description number in the Descriptor sheet	
				No. 27, 23	No. 25, 26
	1	Processes and activities			
	1.1	Life Cycle Stage	select: Sewink, below and in D, 4-1	Manufacturing	Formulation
	1.2	Optional: Provide additional information on processes and activities if needed.	Free text		
	2	Human health - Workers			
	2.1	Type of use	Please select professional or industrial use or both	Industrial	Industrial
	2.2	Physical form under conditions of use	Select	Liquid	Solid
Receipt and storage of packaged goods deliveries, outdoor	2.3	Max. duration of inhalatory exposure	Explanation on exposure duration • 4 h equals less than 8 hours 1h - 4 h equals less than 4 hours 15 min - 1h equals less than 1 hour < 15 min (short term)	< 15 minutes (short term)	< 15 minutes (short term)
Receipt and storage of packaged goods deliveries, indoor	2.4	Outdoor or indoor operation and application of Local Exhaust Ventilation (LEV)	"outdoor" will assume 20% reduction of exposure compared to indoor without LEV, for indoor please specify whether LEV is used.	Indoor without LEV	Indoor with LEV
Receipt and storage of packaged goods deliveries, indoor	2.5	Use of respiratory protection equipment (RPE)	Indicate type of RPE, when RPE is used on a regular basis. Please also indicate the efficiency e.g. 100% for half face mask, 95% for full face mask.	Half face mask	No
Charging manually of packaged goods outdoor	2.6	Use of dermal protective clothes and gloves	select: Yes / No	Yes	No
Charging manually of packaged goods indoor	2.7	Concentration of current Perstorp product	Free text. Percentage in formulation, always based on product entering the process (if required to determine the max. concentration of the substance in the product at any given point)	<0.1	100
Raw material weighing manually - open indoor					
Production of resins including sampling					
Laboratory use at QC and R&D laboratories					
Production of resins including sampling					

Perstorp enkät om användning och exponering

- Bygger på CEFICs Specific ES mall
- Input till modelleringsprogram – deskriptor koder och info om exponering
- Dålig respons från kunder
- Direkt kontakt via vår säljpersonal till nyckel kunder

Sammanställning av användningsområden - exempel

Number	Short ES title	Short description of process or activity	use descriptors				
			Sector of Use (SU)	Process Category (PROC)	Product Category (PC)	Article Category (AC)	Environmental Release Category (ERC)
Manufacturing							
1	Manufacture of substance	Manufacture of chemicals in batch and other process where opportunity for exposure arises, transfer of substance, maintenance, sampling and associated laboratory activities, waste management, incineration and biological waste water treatment	SU3	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC9, PROC 15	n/a	n/a	ERC1
Formulation							
2	Industrial manufacture of polymers	Manufacture of polymers in continuous and batch processes, include sampling, charging, discharging and reactor maintenance, waste management, incineration and biological waste water treatment	SU2	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC 15	PC32	n/a	ERC5, ERC8C, ERC8D
3	Industrial manufacture of oligomers (non-polymers) and substances	Industrial manufacture of oligomers (non-polymers) and substances in continuous and batch processes, include sampling, charging, discharging, reactor maintenance and equipment cleaning, waste management, incineration and biological waste water treatment	SU3	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC 15	PC19	n/a	ERC1, ERC5, ERC6A, ERC8C, ERC6D
4	Formulation and (re)packaging of substances and mixtures	Formulation, packing and re-packing of the substance and its mixtures in batch and continuous operations, including storage, materials transfers, mixing, filtering, large and small scale packing, maintenance, sampling and associated laboratory activities. Include waste management, incineration and biological waste water treatment	SU10	PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC 15	N/A		ERC2
End-uses							
5	Laboratory Chemicals	Professional use - Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	SU22	PROC8a, PROC8b, PROC8, PROC15	PC21	n/a	n/a

Exempel på exp modeller

- Ecetoc TRA
- Stoffenmanager
- Euses
- Consexpo
- ART

Ecetoc TRA - exempel

Manual entry of indicative reference value Basis of reference value:												
reference value inhalation - workers	11,7 mg/m ³	DNEL										
reference value dermal - workers	3,3 mg/kg*day	DNEL										
Human Health Assessment -Workers												
Process Category (PROC)	Type of setting	Is substance a solid?	Dustiness during process	Duration of activity [hours/day]	Use of ventilation?	Use of respiratory protection and, if so, minimum efficiency?	Inhalative Exposure Estimate (mg/m ³)	Dermal Exposure Estimate (mg/kg/day)	Total Exposure = Dermal + Inhalative (mg/kg/day)	Risk Characterisation Ratio - Inhalation	Risk Characterisation Ratio - Dermal	Risk Characterisation Ratio - Total Exposure
SU 3 Industrial Manufacturing (all)												
PROC 1	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,00	0,34	0,34	0,00	0,10	0,10
PROC 2	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,00	1,37	1,37	0,00	0,42	0,42
PROC 3	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,01	0,34	0,34	0,00	0,10	0,10
PROC 4	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,03	6,86	6,86	0,00	2,08	2,08
PROC 5	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,03	13,71	13,72	0,00	4,16	4,16
PROC 8a	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,03	13,71	13,72	0,00	4,16	4,16
PROC 8b	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,01	6,86	6,86	0,00	2,08	2,08
PROC 9	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,01	6,86	6,86	0,00	2,08	2,08
PROC 15	industrial	Yes	low	>4 hours (default)	Indoors without LEV	95%	0,01	0,34	0,34	0,00	0,10	0,10
PROC 1	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,01	0,34	0,34	0,00	0,10	0,10
PROC 2	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,01	1,37	1,37	0,00	0,42	0,42
PROC 3	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,10	0,34	0,36	0,01	0,10	0,11
PROC 4	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,50	6,86	6,93	0,04	2,08	2,10
PROC 5	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,50	13,71	13,79	0,04	4,16	4,18
PROC 8a	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,50	13,71	13,79	0,04	4,16	4,18
PROC 8b	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,10	6,86	6,87	0,01	2,08	2,08
PROC 9	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,10	6,86	6,87	0,01	2,08	2,08
PROC 15	industrial	Yes	low	>4 hours (default)	Indoors without LEV	No	0,10	0,34	0,36	0,01	0,10	0,11

Stoffenmanager - exempel

Microsoft Excel - Stoffenmanager cutting fluid.xls

Stoffenmanager 3.5 exposure model - output screen (version 2.1; 25.04.08)

Administrative data		Results percentiles		
		no PPE	with PPE	
Date of assessment	2010-03-16	5%	0,016	0,006
Name for the task or process that is assessed	Cutting fluid	10%	0,025	0,014
Name of the substance assessed	-	20%	0,088	0,035
Assessor	-	25%	0,125	0,060
Affiliation of the assessor	-	30%	0,172	0,089
Product and substance data		40%	0,304	0,121
Physical state of the substance	Liquid	50%	0,517	0,207
Vapour pressure of the pure substance (Pa)	0,4	60%	0,862	0,353
Percentage of substance in the product used (%)	100 %	70%	1,560	0,624
(Partial) vapour pressure of the substance in the product (Pa)	10	75%	2,140	0,856
Handling data		80%	3,042	1,217
Task or process assessed	Use of metalworking fluids like lubricants during cutting, sanding or drilling activities	90%	7,678	3,071
Handling category	Handling of liquids (using low pressure but high speed) without creating a mist or spray/haze	95%	16,495	6,593
Duration of task or process (hour)	1	This is a spreadsheet version of the quantitative inhalation exposure in Stoffenmanager 3.5 as described in two papers: Marquart et al (2008) and Tielemans et al (2008) - see references. In the summer of 2009 version 4.0 of Stoffenmanager will be released.		
Exposure control data		Estimated exposure distribution		
Local controls used to limit emission from the source	Containment of the source			
Does the worker work within one meter of the source?	yes			
Are there any other sources in the same room for the same substance?	yes			
Volume of the room (or area) in which the worker works	100-1000 m³			
General ventilation in the room (or area)	Mechanical or natural general ventilation			
Immission controls used to limit exposure of the worker	The worker does not work in a cabin			
PPE used	Half mask respirator with filter/cartridge (gas cartridge)			
Is the work area regularly cleaned?	yes			
Is equipment regularly inspected and well maintained?	yes			
Resulting exposure level estimate				
		without PPE	With PPE	
Median estimate of exposure level (mg/m³)		0,5174	0,2070	

Iteration

- Begränsa koncentration
- Product safety (förpackning/hantering)
- Process kontroll (minska utsläpp, bygg in, ventilation, mm)
- Avfallshantering (rengöring/spill)
- Management system (rutiner, utbildning/träning)
- Skyddsutrustning, hygien
- Första hjälpen, hälsobedömning
- Hitta de kritiska användningarna – kontrollera risken
- Resultatet dokumenteras i CSR och ES

Verktyg

- CSR plug-in till IUCLID 5.1
- IUCLID 5.2, inkl deskriptor koder i sektion 3.5, 3.6 (feb 2010)
- CEFIC Worker CSA Template (feb 2010)
- CHESAR, inkl CSA verktyg, ES verktyg (april 2010?)
- CEFIC Environment and Consumer CSA Template (april 2010?)
- RMM bibliotek, standardiserat
- e-SDS guidance?

Diskussion

- Validering av modellerna
- Gemensam CSR
- Risk kommunikation