Exposure to chemicals with special hazards:

An Industrial Hygiene volunteer initiative

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AGENDA

1. Context
2. Volunteer SAELs and OEBs
3. Critical Exposure Screening
4. Specific attention for H SVHC
5. Recommendations

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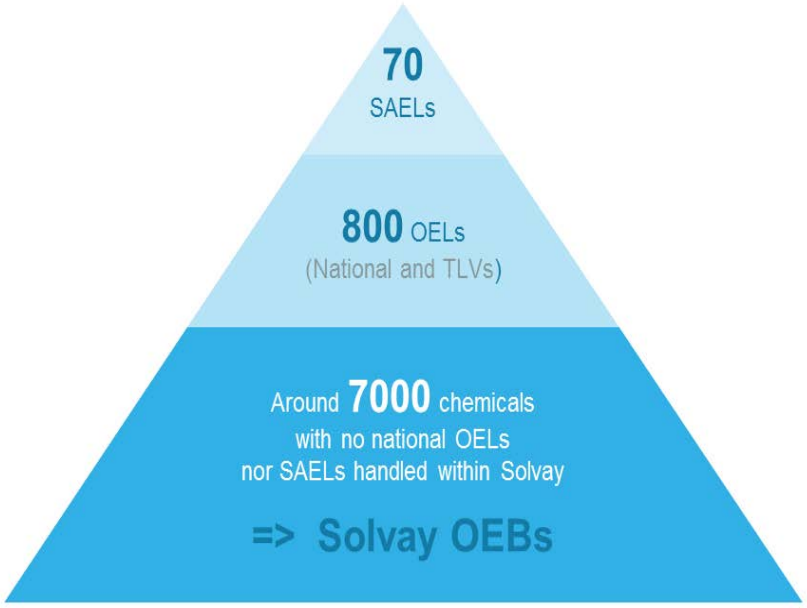
1. Context

- Solvay handles in its processes numerous chemicals at workplaces, and it is her responsibility is to assess and control their risk.
- Main challenges are
  - large number of substances,
  - diversity of tasks,
  - potential complexity of exposure assessments
  - moving landscape of Occupational Exposure Limits OELs
- 3 mains aspects of corresponding volunteer initiative are emphasized in this presentation
  - Hazard asst process (OEB & SAELs)
  - Critical tasks exposure Screening (CTES)
  - Special attention to substances of very high concern for health (H SVHC)

2. Volunteer SAELs and OEBs

- SAELs (Solvay Acceptable Exposure Limits) are developed for substances without an OEL or with doubtful OEL

- When no OEL/ SAEL is available or applicable, the application of an OEB (Oc. Exp. Band enable to assign a class/band of hazard from A (lowest) to E (highest) depending H phrases.



=> Comparing one In-Company "OEB" with three public Hazard Bandings", BOHS, April 2016:

http://www.oh-2016.com/files/2015/08/9c-Leplay-27.04.16-14-00-1.pdf

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3. Critical Task Exposure Screening (CTES)

- Simple to use (few entries) with tasks selection, described with a wording adapted to operators at shop floor level.
- Hidden powerful model (REACH ART 1.5) with conservative rules
- 3 outputs:

  - Exposure by inhalation
  - Highlight the H SVHC substances
  - Warning for dermal risk (local and systemic effects)

=> More than 4500 CTES assessments since mid 2014 by 40 sites WW : 75% of greens
=> 100% working units to be assessed before end 2020

=> Critical Tasks Exposure Screening" British Occupational Hygiene Society, April 2016, Glasgow:

http://www.oh-2016.com/files/2015/08/11c-ROCHIN-28-04-2016-9h50.pdf

4. Specific attention for H SVHC

A WW volunteer policy based on 3 pillars:

- **Inventories (> 1kg/year)**
- **Search for substitution by safer alternative**
- **Exposure minimization & best practices**

4. Specific attention for H SVHC / Inventories

⇒Many necessary discussions with operational sites regarding definition

Solvay H SVHC definition:

1. CMR 1a or 1b (CLP or GHS-Un)
2. Other substances for which there is evidence of equivalent degree of concern (including case by case ED)

⇒ Current statistics ongoing:

	Total n of subst.	Health SVHC	
Solvay OEB	~ 7000	350	**5%**
Solvay SAELs	70	6	**9%**
ATP N° 5 CLP	4140	1148	**28%**

4. Specific attention for H SVHC / Exposure minimization

- **Work processes and engineering control measures**

=> Local Ventilation awareness

- **Reduction of Health-SVHC emissions at source**

=> Fugitive emission monitoring and tracking

- **Early detection of non-routine exposures**

=> Online sensors

- **Properly trained and authorised person**

=> Trainings and SOP

- **Suitable PPE**

=> Guidances and operational “Do/Don’t”

8

4. Exposure minimization, experience return

Risk Priorisation following recognized criteria is a must

Exposure intensity ↓	Level of Risk (LR)				
h	3	2	1	1	1
m	3	3	2	1	1
l	3	3	3	2	1
vl	3	3	3	3	3
severity →	L	M	H	C	D
	Low	Medium	High	Catastrophic	Desastrous

Benchmark of best practices should be reflex

Guidelines for the distribution of
Ethylene Oxide
cefic

Appropriation by shopfloor management is key

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Recommendations

- Many Industrial chemical companies launch voluntary programs (Responsible Care Initiatives) which include such Industrial Hygiene risk identification and control process.

- But what about Small Enterprises (SMEs) and much more dispersed workplaces of end-users & applicators (car repairs, masons, Hair-dressers, house painters, etc. etc…)

- In Europe, REACH should lead to comprehensive and operational risk management measures (ECHA SVHC Road map) that can be efficiently implemented along the supply chain in regards of these special hazards with appropriate DNELs.

Thanks

Back up:
S-OEBs[1] versus H/EUH-codes

Solvay's OEB	Phrases H*	Phys state (amb T[ure])	Range of OEL concentration
A	H303, H305, H313, H316, H320, H333	Liquid (ppm)	50-500
		Solid (mg/m3)	10-10
B	H302, H312, H315, H319, H332, H336, EUH066	Liquid (ppm)	5-50
		Solid (mg/m3)	1-10
C	H301, H304, H311, H314 cat B et C, H317, H318, H331, H335, H361, H362, H371, EUH070	Liquid (ppm)	0,5-5
		Solid (mg/m3)	0,1-1
D	H300, H310, H314 (+cat A), H330, H341, H351, H360, H370, H373, EUH071	Liquid (ppm)	0,05-0,5
		Solid (mg/m3)	0,01-0,1
E	H334, H340, H350, H372	Liquid (ppm)	0,005-0,05
		Solid (mg/m3)	0,001-0,01

1: Comparing one In-Company "OEB" with three public Hazard Bandings", BOHS, April 2016. http://www.oh-2016.com/files/2015/08/9c-Leplay-27.04.16-14-00-1.pdf