Downstream Users of Chemicals Co-ordination group

Extension of the GRA to professionals

FEICA examples

13 May 2022

Potential impacts

- The extension of the GRA to additional hazard classes will potentially affect an enormously number of uses
- A large proportion of these uses are performed by professional users
- There is a risk that adhesives and sealants - without any significant risk in practice - will be **banned without risk assessment**

Potential impacts

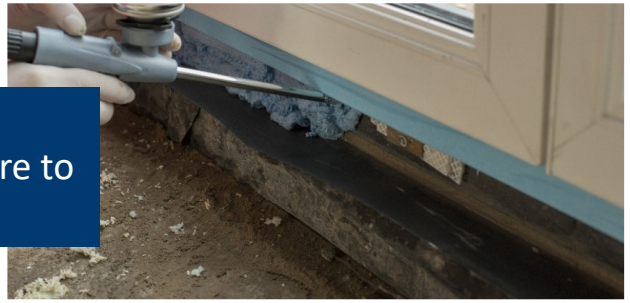
Two examples:

- Product with a hazardous component used safely by professionals - brief mention to the diisocyanates training
- Questionnaire with professionals end users on experience with safety assessment

OCF example

- OCF:
  - moisture curing **O**ne **C**omponent polyurethane **F**oams dispensed from pressurised containers.
  - typically used for gap filling, sealing, bonding, insulating for general construction and renovation purposes.
  - in most EU countries **polyurethane (PU) foam** is the **standard installation/joining material** to seal around windows in construction, due to its top insulation performance for **energy efficient construction**.
  - European OCF manufacturers estimate that over 100.000.000 cans of PU foam are used in the EU every year by well **over 500.000 professional end users.**

One-component polyurethane chemistry is a chemistry based on isocyanate-functional polymers which can react with ambient moisture to form the cured polymer.



OCF example

- The hazard of OCF is driven by the monomeric isocyanate (MDI), which is classified as **respiratory sensitizer and may cause an allergic skin reaction** .

- Dermal exposure assessment: Under the conditions described for its intended use, there is **no dermal contact**.
  - Skin contact is avoided by the design of the can
  - Product cures in minutes
  - PPE's are worn (gloves)

- Inhalation exposure assessment:
  - measurements of MDI on OCF products, containing approximately 15% of MDI monomer, were approx. **83 times below the Occupational Exposure Limit** applicable at the time and even below the new proposed OEL (after 2029):

EC No	CAS No	NAME OF THE CHEMICAL AGENT	OEL LIMIT VALUES				Notation	Transitional measures
			8 hours		Short-term			
			µg NCO/m³	ppm	µg NCO/m³	ppm		
-	-	Diisocyanates, O = C=N-R-N = C=O, with R an aliphatic or aromatic hydrocarbon unit of unspecified length	6		12	-	Dermal and respiratory sensitization, Skin	20 µg NCO /m³ as STEL and 10 µg NCO /m³ as TWA till 2029

  - These **results of the measurements are realistic applications**, in realistic environments.
    - The results obtained show an **extremely low inhalation exposure**
    - In the theoretical extremes, with high volumes extruded in a short time, and a large surface in contact with air (which is not intended in real applications), results are also extremely low, clearly because MDI is **not a volatile substance** at room temperature.

OCF example

- **Measurement results**

Measurements are well below the OEL

Data measurement on site	Operator	Sampling	Worst case results measured	Result spread over Average 8 hours
A – Window and door installation	Installation 2 doors/5 windows	24 minutes extrusion	0,00079 mg/m³ MDI	0,00004 mg/m³ MDI
B – Window installation	Installation 13 windows	16 minutes extrusion	0,00009 mg/m³ MDI	0,000002 mg/m³ MDI
C – Window and door installation	Installation 8 windows/1 door	30 minutes extrusion	0,00046 mg/m³ MDI	0,00003 mg/m³ MDI
Data measurement including laboratory	**Operator**	**Sampling**	**Detection level**	**Results above detection limit**
D – Laboratory and on construction site floor*	Extrusion of 30 cans of foam (17 in laboratory and 13 on site)	30 minutes extrusion	0,0005 mg/m³ MDI	Only 1 out of 8 measuring devices gave a result above detection limit: 0,0006 mg/m³ MDI
E – Laboratory	Extrusion of 10 cans (two times batches of 5 cans of foam)	36:30 and 32:20 minutes extrusion	0,0005 mg/m³ MDI	Out of 7 measuring devices, none gave a result above detection limit

***These conditions were highly unrealistic scenarios**

Typical scenario under which OCF is used:

A team of two people would install typically 5-10 windows/doors a day, translating into up to 3 cans.

Worst case scenario:

The worst-case scenario based on our description would be a 12 can usage in one day, indoors, and cleaning the gun on that same day. A theoretical maximum of 30-40 average sized windows/doors installed a day amounts to 10-12 cans a day.

OCF example

- Because data measurement D and E (laboratory and on construction site floor) in the table were measured over a larger number of cans with a sampling time much higher than the surface curing time of the first extruded foam cans, it is also clear that **inhalation exposure does not increase during curing of the foam**. This is again not surprising in view of the low vapour pressure of MDI.
- Curing time: the formula contains a catalyst in a highly reactive pre-polymer, because it is designed to **cure in minutes**. All remaining monomers therefore will cure accordingly.
- OCF products typically have formed a tack free surface within 10 minutes, and in extreme conditions (very low temperature and humidity) it can take up to 1 hour

The OCF example

- The OCF is one of many examples of products with safe use for professionals
- Under the conditions described for this intended use, we can conclude that OCF products intended for gap filling, sealing, bonding, insulating for general construction and renovation purposes, constitute an intrinsically **safe product**/use combination.
- This example and the measurements indicate that it is not justified to generally ban products based on their hazards, like respiratory sensitizing properties and/or based on professional use.
- Safe use can be guaranteed. It is important to take into account that **the type of use is already safe.**
- **It is disproportionate to ban such type of use without a risk assessment**

Examples level of protection professional users

- Types of companies
  - Applications in the construction sector, e.g. resins injection, refurbishment, waterproofing
  - Application of flooring adhesives, e.g. parquet laying
  - Furniture production, e.g. kitchen furniture
- Present in different EU Member states: Belgium, Sweden, Spain, Germany, Denmark, France, Netherlands, Luxembourg

Measures in place

- 92% of the respondents carried out a risk assessment when chemicals are handled in the workplace
- 92% of the respondents derive information on the safe use of chemicals from SDS, 72% from labels, 16% exposure scenarios, 68% own workplace assessments
- 96% of the respondents use protective gloves, 92% use googles, 72% protective clothing

Training levels

- 40% of the employees followed external vocational training
- 68% of the employees went through internal training at the time of employment
- 76% of the employees go through regularly repeated internal training
- 76% of the employees receive task specific training
- 44% of employees benefit of written workplace specific instructions

The diisocyanates training

- As of 24 August 2023, **training** is required for all professional and industrial users of products with a total monomeric diisocyanate concentration of > 0.1%.

- **A comprehensive training programme was launched to ensure the safe use of diisocyanates for producers and professional users all over Europe.** In this way, these Downstream Users ensure that all end-users of PU containing products across Europe continue to handle diisocyanates safely across Europe.

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- Safe use can be guaranteed. It is important to take into account that **the type of use may already be safe**.