Validation program for control guidance sheets

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Easy-to-use Workplace Control Scheme for Hazardous Substances (EMKG)

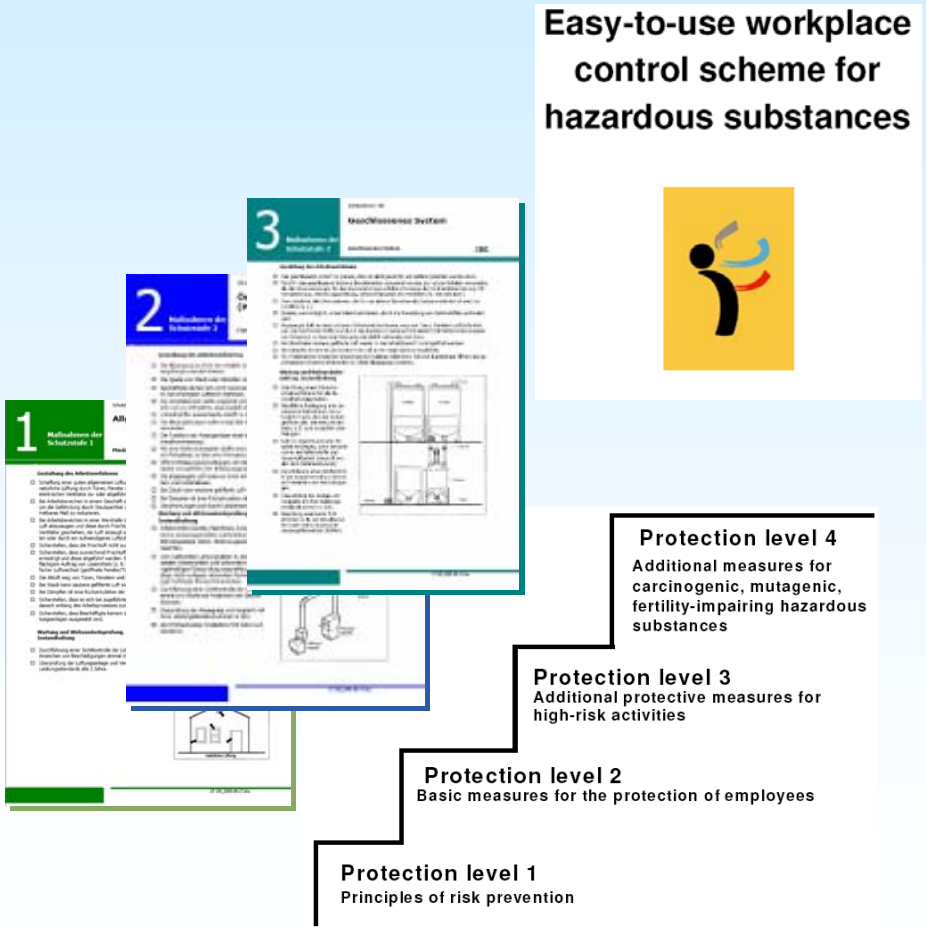
A tool for exposure assessment

- developed from BAuA 2006
- Version 2.1 since 2008
- Version 2.2 from 2011
- Version 3.0 will come 2013

Control Guidance Sheets (CGS)

- Elements of EMKG
- General sheets: 100, 200, 300
- like the COSHH Essentials' CGS

  (Generic and Industry Specific Sheets)



BAuA Project – Validation of Control Guidance Sheets

- CGS are derived from **practical experiences**
- Protection measures are based on **hazards, release** and **amounts** of the substance used
- depending on protection measure exposure bands are **predicted**
- the items of the CGS are transferred into **checklists**
- Workplace measurements are used for **validation**
- measured workplace exposures will be **compared** with predicted exposure bands
- BAuA co-operates with enterprises and employers´ associations

Filling and emptying of containers for liquids

Relevant CGS

210	Charging reactors and mixers from (a sack or) keg
211	IBC filling and emptying
212	Drum filling
213	Drum emptying using a drum pump
301	Glove box
305	Drum filling
306	Drum emptying
308	IBC filling and emptying (liquids)
310	Tanker filling and emptying (liquids)
311	Filling kegs
312	Transferring liquid by pump
314	Bottle filling
+	**General Sheets** (100, 200, 300)

Development of Checklists

- based on general CGS 100, 200, 300
- developed for each CGS concerning filling and emptying of containers
- **12 CGS = 12 checklists**
- 2 classes of Items in the checklists
    1. **general characterisation of the enterprise**
    2. **precise description of the exposure during measurement**
- vague terms shall be transformed into measurable quantities
  example:

(CGS 311)

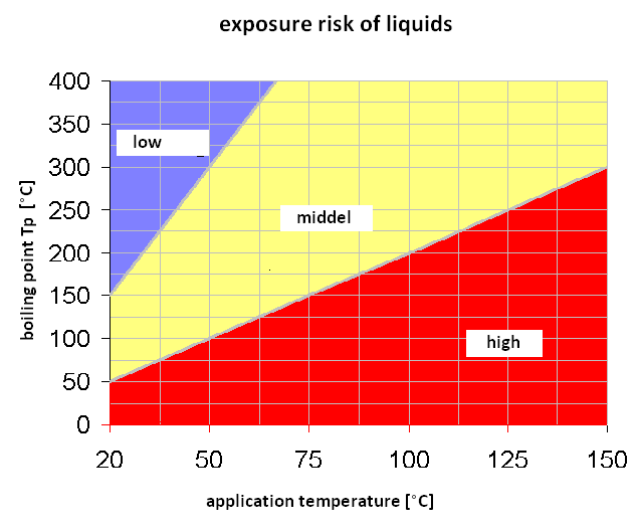
„provide a ventilated enclosure around the filling operation“

➢ **measuring the distance between place of filling operation and enclosure/exhaust [m]**

Our measurement approach (1)

- measuring six enterprises for each CGS using the **checklists**
- measurements of different liquids with **varying boiling points**
- performing workplace measurements during the activities (**no shift values**)
- **personal air sampling** when work is nonstop at the emission source,

  if not: **stationary sampling**



Our measurement approach (2)

- if the duration of one activity is **to short** a number of same activities is **accumulated** in one measurement
- collection of solvents on **thermal desorption tubes** and **activated charcoal tubes**
- desorption of the collected analytes in the lab
- analytical determination and quantification using **GC-MS** or **HPLC**
- simultaneous recording of the activities using **PIMEX** (**PI**cture **M**ix **EX**posure) system with camera and direct reading instruments **(e. g. PID)**
- **comparing** the measured concentrations with the predicted exposure bands

Look into the Future

- if necessary – readjust/modify the CGS
- verifying if the procedure is transferable to other CGS
- you are invited to validate further CGS-packages for similar activities in co-operation with BAuA
- implementation of CGS into the Chemical Safety Report in REACh
- using the PIMEX recordings for illustration of CGS

Thanks for your attention!

Summary

Jörg Fritzsche, BAuA
Validation program for control guidance sheets

- Validation of 12 CGS for filling and emptying of liquids
- Establishment of checklists
- Comprehensive workplace measurements
- Comparison of measuring results and predicted exposure bands
- PIMEX recordings for illustration