Federal Institute for Occupational Safety and Health

Forschungs- und Beratungsinstitut Gefahrstoffe GmbH

Workshop on

BAuA-Research Project F2437

Derivation of occupational exposure limits for airborne chemicals - Comparison of methods and protection levels

5 April 2022, DASA, Stahlhalle, Friedrich-Henkel-Weg 1-25 · 44149 Dortmund

9:00 – 16:30 CET (with online participation possibility)

ABSTRACT

The derivation of occupational exposure limits (OELs) is an important component of the risk assessment and risk management of chemicals in different national as well as international processes. At EU level the harmonisation of airborne exposure limit values is a current issue, because for some substances different exposure limits for workplaces were yielded by occupational safety and health legislation on the one hand and by chemicals legislation on the other hand. Important steps in the process of setting OELs or analogue values are the determination of a point of departure based on adverse effects reported in toxicological studies and the application of assessment factors to bridge data gaps (regarding studies with different exposure duration, differences between species and variability in sensitivity between humans).

The objective of this project was to analyse and disclose the differences between the current methods for deriving exposure limits and the resulting differences in protection levels. To achieve this,

- We analysed and compared the methodologies proposed or used at EU level and at national level in Germany
- Compiled data and used them for establishing distributions for assessment factors used for deriving exposure limits.
- With these distributions and their combinations, we analysed the level of protection achieved by the various methodologies and the reasons for differences.
- Further, we investigated important instruments and methods for deriving exposure limits
    - Dose-response modelling with the benchmark dose approach to determine the point of departure
    - Probabilistic approaches to describe probabilities and uncertainties of exposure limits
    - Methods for the modelling of kinetics of aerosols in the respiratory tract to describe respective interspecies differences and for determining a human equivalent concentration (HEC).

The overarching aim was to develop a common understanding of the necessary methodological steps in the setting of exposure limits and in this way to support harmonisation of the derivation of occupational exposure limits in the EU.

Relevant Links

Full report can be downloaded here:
https://www.baua.de/EN/Service/Publications/Report/F2437.html

Peer-reviewed publications available here:

https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/epdf/10.1002/jat.4305

https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/epdf/10.1002/jat.4307

AGENDA FOR WORKSHOP ON BAUA-RESEARCH PROJECT F2437

Hosts: K. Heine, U. Schuhmacher-Wolz (FoBiG)

Topic	Presenter	Time
Arrival / coffee Online registration		09:00 – 10:00 09:30 – 10:00
Welcome / housekeeping	R. Pipke (BAuA)	10:00 – 10:10
Background and overall objectives	C. Drossard (BAuA)	10:10 – 10:20
Overview on research project F2437	E. Kaiser (FoBiG)	10:20 – 10:40 (with discussion)
Analysis of methods for deriving OELs	K. Schneider (FoBiG)	10:40 – 11:25 (with discussion)
Coffee break		
Time and interspecies extrapolation (data evaluations and conclusions)	E. Kaiser (FoBiG)	11:45 – 12:30 (with discussion)
Lunch break		
Intraspecies extrapolation (data evaluations and conclusions)	K. Schneider (FoBiG)	13:30 – 14:15 (with discussion)
Discussion of protection levels, with examples	K. Schneider (FoBiG)	14:15 – 15:10 (with discussion)
Coffee break		
Open questions and steps towards implementation	K. Schneider (FoBiG)	15:30 – 15:45
Plenary discussion	all	15:45 – 16:15
Resume	E. Kaiser, K. Schneider (FoBiG)	16:15 – 16:25
Meeting closure	T. Gebel (BAuA)	16:25 – 16:30