

CEFIC LRI B15-2: Development of an integrated risk management measure library

Henk Goede, Remy Franken, Eugene van Someren, Wouter Fransman, Rianda Gerritsen-Ebben

TNO, Zeist, The Netherlands

Background

REACH and other European legislation require that companies demonstrate the safe use and control of hazardous substances. For this purpose, the quantitative efficiency of Risk Management Measures (RMM) is required to evaluate the operational conditions (OCs) that are part of exposure scenarios in order to predict the resulting exposures or environmental concentrations. Presently, companies can obtain information on the quantitative efficiency of RMM from only a limited number of sources. Important sources are the CEFIC RMM Library, the TNO Exposure Control Efficacy Library (ECEL¹) and the OECD emission scenario documents. These sources vary in what they can offer in terms of extracting suitable efficiency levels for RMMs, their compatibility with the needs in REACH and the availability of a web-based user-friendly database design. For example, the CEFIC RMM Library is a useful resource that provides a broad scope of occupational, environmental and consumer RMM that is aligned with REACH. Its user-friendliness is however limited due to its size and the chosen format. On the other hand, the Exposure Control Efficacy Library (ECEL) is a web-based tool currently focused on occupational RMM data (engineering controls) and allows a user to access a wide range of workplace control measures and their efficiency levels in a well-designed and user-friendly database structure.

Considering the different RMM libraries available, it will be preferable to combine these efforts and resources in order to collate occupational and environmental RMM data. CEFIC LRI B15-2 has started in October 2017 to address this.

Objectives

1. To merge the currently available sources and libraries available
2. To adapt the current version of ECEL (ECEL v1.0, Figure 1):
 - (a) to be compatible with the needs in REACH by using the information available from the CEFIC LRI B15 project results (2015-2017)
 - (b) include environmental RMM data in the revised ECEL structure
3. To develop a method to derive RMM efficiency values
4. To develop a web-based TNO ECEL v 2.0 RMM library database

industry	risk management strategy	task	substance	route	study	efficacy
Construction	Local ventilation systems-Capturing hoods	Movable capturing hoods	Welding	Manganese	Inhalation Intervention	0.47
Construction	Local ventilation systems-Capturing hoods	Movable capturing hoods	Welding	Total particulate	Inhalation Experimental study	0.41
Construction	Local ventilation systems-Capturing hoods	Movable capturing hoods	Welding	Manganese	Inhalation Experimental study	0.26
Construction	Local ventilation systems-Capturing hoods	Movable capturing hoods	Welding	Hexavalent chromium (CrVI)	Inhalation Cross-sectional (a-posteriori design)	0.22
Construction	Local ventilation systems-Capturing hoods	Movable capturing hoods	Welding	Hexavalent chromium (CrVI)	Inhalation Experimental study	0.32

Figure 1: Main search screen currently applied in ECEL v1.0

Work packages

From a technical, software and user-friendliness perspective, the current structure of ECEL is proposed as a starting point. The structure of ECEL will first be adapted to be fully compatible with the needs in REACH (in close collaboration with CEFIC LRI monitoring team) by using the information available from the CEFIC LRI B15 project results. This will also include the required fields to include environmental RMM data in the revised ECEL structure v2.0. Three work packages are proposed to achieve the objectives:

- Work Package 1: Structure development of the RMM library
 - Adapt the ECEL database structure to include REACH terminology (e.g. PROC)
 - Format suitability for data entry and evaluation of both work-related and environmental RMMs by using the output from the CEFIC LRI B15 project
- Work Package 2: Development of a method to derive RMM efficiency values

- Proposal on how to most reliably pool estimates of RMM (sub-) groups and subsequently derive the preferred efficiency values
- A simple guideline that describes the advised method to obtain a suitable RMM efficiency value
- Work Package 3: Refinement of the web-based library ECEL v2.0
 - Refinement of the database structure based on output from WP 1 and 2
 - Preparation of a user guideline

The estimated project duration will be eight months from October 2017 to May 2018.

Outcome and future initiatives

This project will deliver a web-based TNO ECEL v 2.0 RMM library database that will be hosted by TNO and will be freely available. The ECEL v2.0 database will contain data merged from ECEL v1.0 and the CEFIC LRI B15 databases. The content of the database will be compatible with REACH and will include occupational and environmental RMM data. A possible phase 2 (out of scope of this project) will be required for future updating of the database.

References

Fransman W., Schinkel J., Meijster T., van Hemmen J., Tielemans E., Goede H. (2008) Development and Evaluation of an Exposure Control Efficacy Library (ECEL). *Ann Occ Hygiene* 52 (7):567-575.

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