Integrated Exposure for Risk Assessment in Indoor Environments (INTERA)

A review of existing indoor air pollutant exposure data and models

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EXECUTIVE SUMMARY

The Integrated Exposure for Risk Assessment in Indoor Environments (INTERA) project was commissioned by CEFIC under the Long Range Research Initiative to develop novel methods for the integration of exposure and risk information relating to household air pollutants within EU home settings. This report represents a distillation of Work Package 1 (WP1) and presents information on a review of the scientific literature of inhalation, dermal and ingestion exposures to indoor pollutants in domestic environments within the past 15 years. The review additionally identifies existing and developing indoor pollutant modelling methods across all exposure routes.

Using a systematic approach and the online database Ovid Medline, a total of 57 scientific publications relevant to exposures generated by the use of household consumer products have been identified and reviewed. Additional material relevant to mould, biological material and fine particulate matter have also been generated although not reviewed for the purposes of the INTERA project.

A total of 29 indoor pollutant modelling methods are presented. Several of these are still under development. These models range from broad risk characterisation models through to exposure modelling systems for specific tasks.

The output of this review and a series of project meetings/expert webinars has been the establishment of an exposure determinant matrix for the main indoor pollutant chemical groups that will be considered by future work packages in the INTERA project. These groups are: radon, carbon monoxide, carbon dioxide, nitric oxides, polycyclic aromatic hydrocarbons

(PAHs), aldehydes, polybrominated diphenyl ethers (PBDEs), nicotine and volatile organic compounds (VOCs). The exposure determinant matrix and information on measurements and modelling methods will be utilised in the further development of a knowledge management system for the full chain approach that INTERA will take to characterize exposure and risk in indoor environments.