

Prioritised substance group: Diisocyanates

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Short overview of results of the activities carried out within HBM4EU in 2020 to answer the policy questions with reference to corresponding deliverables.

Policy Question	Short Summary of Results
What is current occupational exposure to diisocyanates?	Under WP8.5 a systematic review on the existing diisocyanate data was performed. This has been published as a paper by Scholten et al., Annals of Work Exposures and Health, 1-17, 2020. Although several studies were found describing exposures at different sectors, most of the studies were >10 years old and variable exposures were described. In addition, for example data on the use of diisocyanates in construction sector was limited. Study also highlighted the need for a harmonised approach to study and report biomonitoring levels. There is also a need to develop and test new, more specific biomarkers for the biomonitoring of diisocyanates.
What are the best markers to identify hazardous exposures to diisocyanates?	In addition to the systematic review by Scholten et al (2020), D9.5 (Prioritised list of biomarkers, matrices and analytical methods for the 2nd prioritisation round of substances) summarises the current state-of-art on the biomonitoring of diisocyanates. Although measurement of urinary diamines is currently “a golden standard”, this method is not specific for diisocyanates. However, it is possible to measure diisocyanate specific albumin or Hb adducts, which is recommended as a second option for biomonitoring. Also new methods for diisocyanate biomonitoring are under development as described in Scholten et al., 2020.
What is the likely impact of forthcoming REACH restriction/possible EU wide OEL of diisocyanates?	This will be studied in the planned occupational diisocyanate study which will be performed in 2020-2021. The research plan for this second occupational study has been published as AD8.4 “Detailed research plan for the occupational diisocyanate and E-waste study” in the beginning of 2020. Laboratories performing analysis of different aniline compounds have been listed in D9.3 (Database of candidate laboratories for the 1st prioritisation round of substances) and ICI/EQUAS for aromatic amines started in June 2019 and the results are finalised in mid-2020. Laboratories passing the QA for urinary diamines will be candidates to perform U-diamine analyses in this occupational diisocyanate study.
What are the health risks and human health impacts of the current	Health risk assessment of diisocyanates is under preparation in WP5.3. This will use available information on the dose-responses of diisocyanate induced asthma and existing information on diisocyanate exposure gathered from the literature and by WP10. PBPK model will be prepared under WP12 to link biomarker levels to external exposure levels. First version of the model will be finished in fall 2020

occupational diisocyanate exposures?

and the model will be tested and refined as part of WP8.5 occupational diisocyanate study.

AOPs for diisocyanates are under development in WP13 to support human health risk assessment.