Derivation of indoor air guidance values for volatile organic compounds (VOC) emitted from polyurethane flexible foam: VOC with repeated dose toxicity data

Article - PDF

Supplementary material - PDF

Article - HTML

Article - XML

Published Aug 7, 2018

DOI https://doi.org/10.17179/excli2018-1440

Thomas Schupp
Muenster University of Applied Science, Chemical Engineering, Stegerwaldstrasse 39, D-48565 Steinfurt, GERMANY

Abstract

Polyurethane Flexible Foams (PUF) are versatile materials used in upholstered furniture and bed mattresses. Due to the production procedure, fresh foams emit volatile organic compounds (VOC). Chamber tests issued by the European association of flexible polyurethane foam blocks manufacturers (EUROPUR) revealed certain levels of VOCs, and the emission rates are declining over time. To assess the risk associated to these VOCs which, as a consequence, might be detectable in indoor air where these PUF are used. To evaluate the risk for consumers, their concentration can be matched against existing benchmarks for indoor air. These benchmarks are, for example, guidance values derived by the Advisory Group for Indoor Air Guidance Values of the German UBA (RW-values), Lowest Concentrations of Interest (LCI) for building products, or against derived no effect levels (DNELs) for consumers, defined in registration dossiers under the European Regulation No. 1907/2006. In this paper, indoor air guidance values are derived for some VOCs which do have neither RW- nor LCI-values, and no DNELs for consumers. Substances covered are trimethylsilanol, fluorotrimethylsilane, chloropropanol, propanal, triethylenediamine and 2,2,3,3-tetramethyl succinodinitrile.

How to Cite

Schupp, T. (2018). Derivation of indoor air guidance values for volatile organic compounds (VOC) emitted from polyurethane flexible foam: VOC with repeated dose toxicity data. *EXCLI Journal*, *17*, 784-791. https://doi.org/10.17179/excli2018-1440

More Citation Formats

Issue

Vol 17 (2018)

Section

Original articles

Most read articles by the same author(s)

- Thomas Schupp, Philipp Alexander Georg, Guenter Kirstein, Toxicological risk at workplace and toxicity as Life Cycle Assessment impact category: Substitution of solvents as an example , EXCLI Journal: Vol 16 (2017)

EXCLI Journal has been added to

- Directory of Open Access Journals (DOAJ)
- Electronic Journals Library (EZB)
- Web of Science
- SCOPUS
- Pubmed Central
- Pubmed
- EBSCO Academic Search
- SCImago
- LIVIVO
- BASE

Impact Factor

- *2013: 0.728*
- *2014: 0.857*
- *2015: 1.292*
- *2016: 1.462*
- *2017: 2.424*