

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

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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.

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