Abstract

Occupational Exposure Banding E-Tool Demonstration

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Background: The draft NIOSH occupational exposure banding process is a validated approach to categorizing chemicals that lack occupational exposure limits (OELs). The process uses limited toxicity data to categorize chemicals into one of five bands, A through E, which represent specific exposure concentration ranges. In addition to developing the draft process, NIOSH has also developed an e-Tool to help simplify the banding process for the user. In this demonstration, dimethyl sulfate is banded using the e-Tool to demonstrate the utility of the tool. Methods: The occupational exposure banding e-Tool will be used to band dimethyl sulfate. First, chemical potency and health effect data are collected from NIOSH recommended sources. Next, the user enters the extracted data, which can be either quantitative or qualitative in nature, into the e-Tool. The e-Tool than compares the entered data to the NIOSH criteria. On the basis of NIOSH criteria, the e-Tool assigns the chemical to a band for each endpoint for which data exists. The most protective band is assigned as the OEB for the chemical. Results: The results of banding dimethyl sulfate are as follows: Tier 1 and Tier 2 Band: E (Liquid/Vapor Range ≤ 0.1 ppm) Conclusion: The preliminary results indicate that the draft NIOSH occupational exposure banding process and e-Tool could reduce the amount of time and data required to categorize a chemical based on toxicity and potency, thereby allowing employers to assess and manage risks to workers more efficiently. Furthermore, the e-Tool helps simplify the new process for the user.

Occupational health and safety