A Quantitative Risk Assessment of the Skin Sensitization Induction Potential of the Kathon CG Preservative in Rinse-Off and Leave-On Personal Care and Cosmetic Products

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Abstract:
Kathon CG is a commonly used cosmetic grade preservative that contains active ingredients methylchloroisothiazolinone (MCI) and methylisothiazolinone (MI). The objective of this study was to perform a skin sensitization induction risk assessment of daily exposure to Kathon CG following use of various personal care and cosmetic products. We calculated an estimated daily consumer exposure level (CEL) for rinse-off and leave-on products using the amount of product applied per application, number of applications per day, a retention factor, the MCI/MI concentration, and body surface area values. We assumed that the products contained the maximum recommended safe concentration of MCI/MI: 15 ppm in rinse-off products and 7.5 ppm in leave-on products. We compared estimated CELs to the no expected sensitization induction level (NESIL) for MCI/MI, and applied sensitization assessment factors to calculate product-specific margins of safety (MOS). The MOSs for rinse-off products ranged from 5 to 63, while the MOSs for leave-on products ranged from 0.03 to 1.49. Overall, our results provide evidence that some leave-on products containing the maximum recommended safe concentration of Kathon CG may increase the risk of sensitization induction due to exposure to MCI/MI. In contrast, rinse-off products were not associated with a potential increased risk of skin sensitization induction.