evaluate the effectiveness of LEV systems that are marketed specifically for nail salons. Total VOCs (TVOC, photoionization detector, Tiger) and speciated VOCs (Fourier Transform Infrared spectrometer, Gasmet Inc) were measured in the breathing zone while manicures were simulated in an exposure chamber. Ten brands of nail polishes marketed as "non-toxic" were evaluated by applying two coats to artificial nails and exposures measured following the methods described above. Additionally, four different local exhaust ventilation (LEV) designs marketed to nail salons were evaluated. A Bayesian spline model was used to analyze log-transformed concentrations, incorporating task-related fixed effects and covariates. Task and manicure type significantly impact TVOC exposures with acrylic manicures having the highest TVOC exposures. Speciated VOC exposures varied significantly between the type of manicure being performed. Formaldehyde and toluene were detected in all "non-toxic" polishes tested. Average formaldehyde and toluene exposures ranged from <LOD to 0.16 ppm and from <LOD to 0.67 ppm, respectively, depending on polish brand. LEV moderately reduced TVOC exposures by 30-70%, consistent with prior research. These findings emphasize the need for comprehensive exposure reduction strategies in nail salons, that considers the diverse chemicals used in various services.

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109 Evaluation of chemical exposures and exposure mitigation strategies for nail salons

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Nail products often contain hazardous chemicals such as formaldehyde, toluene, benzene, and phthalates; chemicals that have been linked to health issues such as respiratory irritation, asthma, and adverse reproductive outcomes. The objective of this study was to measure volatile organic compound (VOC) exposures associated with 1) different manicure types (lacquer, gel, dip, and acrylic), 2) "non-toxic" nail polishes and 3)