Chair(s):

T23.1 Evaluating Occupational Exposures to Benzene at an Industrial Chemical Plant. *Paustenbach, D., Williams, P.R.D.; Exponent* dpaustenbach@exponent.com

Abstract: Over the last two decades, significant attention has focused on potential airborne exposures to benzene in occupational and community environments. Although data are readily available on air concentrations outdoors and during various micro-activities (e.g., refueling), few data have been published on airborne concentrations of benzene within industrial settings. In this paper, the available industrial hygiene benzene air monitoring data collected at a chemical facility in the United States from the mid-1970s to the late 1980s are characterized. Specifically, we evaluate the time-weighted average (TWA) personal benzene air samples for operators in the production process areas, and put the available short-term (peak) and area samples into context with the longer-term sampling data. We also describe the results of on-site air modeling data, which represent estimated annual average concentrations of benzene at various outdoor locations of the facility. We find that the production process workers in those areas handling benzene at the chemical plant were exposed, on average, to airborne concentrations of benzene ranging from about 1-3 ppm (mostly due to short-term, job-specific tasks). Other types of workers not in the production areas were likely exposed to much lower air concentrations of benzene, roughly equivalent to predicted background levels (0.01–0.05 ppm). These data provide useful information on measured and modeled airborne concentrations of benzene at a typical chemical plant in the U.S. over an approximate 20-year period.