

**PO 121-2 Occupational Exposure to Artificial Butter Flavorings: A State-of-the-Art Analysis.** *D. Hollins, D. Galbraith, B. Finley, ChemRisk, San Francisco, CA; J. Pierce, ChemRisk, Chicago, IL.*

**Objective:** Since investigating potential health hazards of the Gilster- Mary Lee sentinel plant in 2000, the National Institute of Occupational Safety and Health (NIOSH) and numerous other researchers have conducted additional industrial hygiene and cross-sectional medical investigations in microwave popcorn, flavorings manufacturing, and other related facilities. While initial conclusions offered in these NIOSH reports suggest that respiratory disorders were elevated in certain workers and that diacetyl appeared to have been a potential causative agent, concerns have recently shifted to other flavoring chemicals that are present in artificial butter flavorings.

**Methods:** We performed a weight of evidence analysis reviewing the existing animal toxicology and epidemiology studies pertaining to artificial butter flavorings, and completed a detailed analysis of the relevant NIOSH Health Hazard Evaluations (HHEs) that have been conducted to date.

**Results:** Occupational exposures to artificial butter flavorings during food manufacturing and processing have only been recently studied. Interestingly, while deep lung effects have been reported in humans potentially exposed to these chemicals, high exposures to butter flavorings did not cause deep lung effects in the animal model. Further, the preponderance of studies fails to demonstrate an exposure-response relationship between exposure to artificial butter flavorings and lung disease. Although, current research has identified additional chemical constituents of artificial butter flavorings, research is limited and little is known about toxicity and exposure to these chemicals in the workplace.

**Conclusion:** The health effects associated with exposure to artificial butter flavorings remain unclear. Future research is warranted to determine (1) the concentrations of the various constituents of artificial butter flavorings in the workplace, and (2) whether or not these exposures are associated with increased disease occurrence.