Amanda Burns, M.S.P.H., DABT

PRINICIPAL SCIENTIST

CONTACT INFORMATION

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PROFESSIONAL PROFILE

Ms. Amanda Burns is a board-certified toxicologist with over 17 years of consulting and project management experience. Her principal areas of training and expertise include toxicology, occupational and environmental exposure assessment, and human health risk assessment. In addition to her consulting experience, Ms. Burns has seven years of laboratory experience in the field of molecular toxicology. Her graduate work and master's thesis focused on phthalates and a class of compounds known as peroxisome proliferators that induce liver tumors in rodents. Her consulting and project experience includes conducting quantitative exposure and dose assessments, as well as assessing risk to communities, consumers, and workers from chemicals such as benzene, asbestos, pesticides, and metals. In addition, Ms. Burns has significant experience conducting on-site exposure assessments at various types of facilities. She has authored and/or co-authored over 25 published articles, book chapters, and abstracts on the topics of talc, asbestos, benzene, nanoparticles, and phthalates.

EDUCATION AND DEGREES EARNED

2007	M.S.P.H., Environmental Science and Engineering University of North Carolina, Chapel Hill, NC
2001	B.S., Biology Pennsylvania State University, University Park, PA

CERTIFICATIONS

2018	Diplomate, American Board of Toxicology (DABT)

PROFESSIONAL ASSOCIATIONS

2014-Present	Society of Toxicology

SELECTED PROFESSIONAL EXPERIENCE

Human Health Risk and Exposure Assessment

Various asbestos and benzene-related projects

- Performed statistical analysis for asbestos and benzene-related projects using programs such as Microsoft Excel and Access, SYSTAT, and ProUCL.

Benzene dose reconstruction at four domestic refineries

- Involved in a historical benzene dose reconstruction for refinery employees at four domestic refineries in support of a large oil company.
- Participation in this project included quality control of industrial hygiene databases, historical document review and summarization, data analysis, development of standardized area, job and task descriptions across refineries, reporting of findings, and other supporting tasks.
- This work resulted in the publication of a series of manuscripts relating to occupational benzene exposures.

Analysis of workplace benzene air concentrations at four petroleum refineries

- Designed and conducted a comprehensive analysis of workplace benzene air concentrations measured at four petroleum refineries in the United States over a span of 30 years.
- This work resulted in a publication of a peer-reviewed manuscript. This paper is unique in that it presents an expansive data set, including approximately 12,000 long-term and 4,000 short-term or task-based samples, which equates to an evaluation of 50 standardized job titles and 24 unique tasks. In addition, state-of-the-art methods were used to develop and analyze this dataset.

Qualitative and quantitative exposure assessments at multiple oil refineries

- Conducted qualitative and quantitative exposure assessments at multiple oil refineries to establish similar exposure groups (SEGs) and rank the potential risks associated with each SEG and similar exposure task (SET).

- Project consisted of a review of personnel job titles as well as process units at each refinery. On-site support consisted primarily of interviewing maintenance, operations, and administrative personnel to gather information regarding job duties, exposure potential, personal protective equipment (PPE) usage, and other control measures.
- Collected personal full-shift volatile organic compound (VOC) and noise samples as part of this effort. Task-based sampling was also conducted as appropriate.

Historical benzene exposure assessment at chemical manufacturing facility

- Participated in a historical exposure assessment based on industrial hygiene measurements of benzene from a chemical manufacturing facility.

Evaluation of potential asbestos exposure from cosmetic talc

- Evaluated potential airborne asbestos exposures associated with the historical use of cosmetic talc-containing consumer products under various scenarios.
- Developed a method for evaluating potential asbestos exposures under a worst-case scenario using airborne dust exposure data associated with using cosmetic talc-containing products.

FDA Premarket Tobacco Applications chemical risk assessments

- Conducted numerous chemical risk assessment in technical support of United States (US) Food and Drug Administration (FDA) Premarket Tobacco Applications (PMTAs) for multiple manufacturers of alternative tobacco products.

Manufactured gas plant human health risk assessment data analysis

- Performed data analysis for a human health risk assessment of remedial actions to be taken at a former manufactured gas plant site.

Overspray filter and hazard waste disposal safety hazard assessment

- Assessed safety hazards associated with spontaneous combustion of paint of overspray filters and hazardous waste disposal.

Chromium- and nickel-containing thermal spray paint health effects

- Assessed the likelihood of adverse health effects based on alleged exposure to chromium and nickel-containing thermal spray paints.

Antimony-contaminated dietary supplemental health risk evaluation

- Evaluated the potential for health risks from ingesting a dietary supplement contaminated with antimony.
- This project included the development of a more relevant reference dose (RfD) than that the historical RfD developed by the US Environmental Protection Agency Integrated Risk Information System (IRIS).

Gasket and packing equipment asbestos qualitative and quantitative assessments

- Conducted numerous qualitative and quantitative exposure assessments evaluating potential asbestos exposure associated with gaskets and packing on equipment including pumps.

Airborne asbestos retrospective exposure assessment

Contributed to the design and execution of a retrospective exposure assessment for airborne asbestos exposures associated with multiple scenarios, including potential exposures to asbestos resulting from gasket and packing work as well as work with and around insulation materials. This work was submitted to the US Bankruptcy Court.

Qualitative exposure assessment at multiple semiconductor facilities

- Conducted qualitative exposure assessments at multiple semi-conductor facilities to establish SEGs and rank the potential health risks associated with each SEG and SET.
- On-site support consisted primarily of interviewing maintenance, operations, and administrative personnel to gather information regarding job duties, exposure potential, PPE usage, and other control measures.

Qualitative exposure assessment at battery manufacturing facility

- Implemented a qualitative exposure assessment at a battery manufacturing facility to establish SEGs and rank the potential health risks associated with each SEG and SET.
- On-site support consisted primarily of interviewing employees to gather information regarding job duties, exposure potential, PPE usage, and other control measures.

Toxicological Assessments

Food product safety assessments

- Conducted safety assessments in a food product for supply chain management.
- Evaluated the potential human health risks from trace contaminants in food transported in bulk containers on large vessels.

Non-food grade additive human health hazard assessment

- Assessed the possible human health hazard associated with the inadvertent use of non-food grade additives in food. This work was submitted to the FDA.

Flour supplemental nutrients/vitamins risk evaluation

- Conducted an evaluation of the risks associated with having slightly lesser quantities of supplemental nutrients/vitamins in flour.

TBBPA, HBCD, polychlorinated naphthalenes toxicological literature review and summarization

- Reviewed and summarized toxicological literature to prepare toxicity profiles for health hazard information for chemicals such at tetrabromobisphenol A (TBBPA), hexabromocyclododecane (HBCD), and polychlorinated naphthalenes.

Evaporative and combustive emission health effects evaluation

- Evaluated key health effects associated with evaporative and combustive emissions from gasoline.
- Conducted review of literature related to whole emissions and specific constituents of emissions, such as specific metals or volatile organic compounds (VOCs).

Dioxin and furan literature review and summarization

- Reviewed and summarized environmental background exposure concentrations of dioxins and furans reported in the published literature over the past ten years.

Perchloroethylene literature review for exposure reconstruction

- Conducted a literature review of published exposure studies for perchloroethylene in order to conduct an exposure reconstruction.

Diesel exhaust exposure toxicological review and summarization

- Reviewed and summarized current toxicological literature regarding diesel exhaust exposure and effects on pulmonary function, injury, and inflammation.

Tire industry nanomaterial human health and environmental implications

- Participated on a project to understand the state of knowledge regarding human health and environmental implications related to the use of nanomaterials in the tire industry for a consortium of tire manufacturers.
- Reviewed literature on specific nanomaterials relevant to the tire industry, including carbon black, and identified key stakeholders who have the potential to impact the future nanomaterial regulation.

BOOK CHAPTERS

Ierardi AM, **Burns AM**, Bernstein DM. 2024. Talc. In: Paustenbach DJ, Farland WH, Klaunig J, Levy L, Greim H (eds), Patty's Toxicology, 7th Edition. Wiley.

Ierardi AM, **Burns AM**, Urban A, Finley B. 2024. A risk assessment of cosmetic talc for the development of mesothelioma and ovarian cancer. Ch. 13 in: Paustenbach DJ, Feinberg (eds), Human and Ecological Risk Assessment: Theory and Practice, Third Edition. Wiley. pp. 541-570; doi: 10.1002/9781119742975.ch13.

PUBLICATIONS

Burns AM, Barlow CA, Banducci AM, Unice KM, Sahmel J. 2019. Potential airborne asbestos exposure and risk associated with the historical use of cosmetic talcum powder products. Risk Anal 39(10):2272-2294; doi: 10.1111/risa.13312.

Burns AM, Barlow CA, Banducci AM, Unice KM, Sahmel J. 2019. Letter to the editor: Response to letter to the editor (Finkelstein 39(12):2601-2603). Risk Anal 39(12):2604-2607; doi: 10.1111/risa.13418.

Hollins D, **Burns A**, Unice K, Paustenbach DJ. 2019. An analysis of workplace exposures to asbestos at three steel mills located in the United States (1972-1982). Toxicol Ind Health 35(11-12):726-737; doi: 10.1177/0748233719893905.

Burns A, Shin J, Unice KM, Gaffney SH, Kreider ML, Gelatt RH, Panko JM. 2017. Combined analysis of job and task benzene air exposures among workers at four US refinery operations. Toxicol Ind Health 33(3):193-210; doi: 10.1177/0748233715619072.

Sahmel J, Avens HJ, Scott PK, Unice K, **Burns A**, Barlow CA, Madl AK, Henshaw J, Paustenbach DJ. 2015. Measured removal rates of chrysotile asbestos fibers from air and comparison with theoretical estimates based on gravitational settling and dilution ventilation. Inhal Toxicol 27(14):787-801; doi: 10.3109/08958378.2015.1110216.

Kreider ML, **Burns AM**, DeRose GH, Panko JM. 2013. Protecting workers from risks associated with nanomaterials: Part II – Best practices in risk management. Occupation Health & Saf 82(9):20-24.

Kreider ML, **Burns AM**, DeRose GH, Panko JM. 2013. Protecting workers from risks associated with nanomaterials: Part I – Exposure assessment. Occupation Health Saf 82(7):90-94.

Sahmel J, Devlin K, **Burns A**, Ferracini T, Ground M, Paustenbach D. 2013. An analysis of workplace exposures to benzene over four decades at a petrochemical processing and manufacturing facility (1962-1999). J Toxicol Environ Health A 76(12):723-746; doi: 10.1080/15287394.2013.821393.

Gaffney SH, Panko JM, Unice KM, **Burns AM**, Kreider ML, Gelatt RH, Booher LE, Paustenbach DJ. 2011. Occupational exposure to benzene at the ExxonMobil refinery in Baytown, TX (1978-2006). J Expo Sci Environ Epidemiol 21(2):169-185; doi: 10.1038/jes.2009.53.

Widner TE, Gaffney SH, Panko JM, Unice KM, **Burns AM**, Kreider ML, Marshall JR, Booher LE, et al. 2011. Airborne concentrations of benzene for dock workers at the ExxonMobil refinery and chemical plant, Baton Rouge, Louisiana, USA (1977-2005). Scand J Work Environ Health 37(2):147-58; doi: 10.5271/sjweh.3128.

Kreider ML, Unice KM, Panko JM, **Burns AM**, Paustenbach DJ, Booher LE, Gelatt RH, Gaffney SH. 2010. Benzene exposure in refinery workers: ExxonMobil Joliet, Illinois, USA (1977-2006). Toxicol Ind Health 26(10):671-90; doi: 10.1177/0748233710378115.

Panko JM, Gaffney SH, **Burns AM**, Unice KM, Kreider ML, Booher LE, Gelatt RH, Marshall RJ, Paustenbach DJ. 2009. Occupational exposure to benzene at the ExxonMobil refinery at Baton Rouge, Louisiana (1977–2005). J Occup Environ Hyg 6(9):517–529; doi: 10.1080/15459620903044161.

Woods CG, **Burns AM**, Bradford BU, Ross PK, Kosyk O, Swenberg JA, M.L. Cunningham, Rusyn I. 2007. WY-14,643-induced cell proliferation and oxidative stress in mouse liver are independent of NADPH oxidase. Toxicol Sci 98(2):366-374; doi: 10.1093/toxsci/kfm104.

Woods CG, **Burns AM**, Maki A, Bradford BU, Cunningham ML, Connor HD, Kadiiska MB, Mason RP, Peters JM, Rusyn I. 2007. Sustained formation of alpha-(4-pyridyl-1-oxide)-N-tert-butylnitrone radical adducts in mouse liver by peroxisome proliferators is dependent upon peroxisome proliferator-activated receptor-alpha, but not NADPH oxidase. Free Radic Biol Med 42(3):335-342; doi: 10.1016/j.freeradbiomed.2006.10.053.

Woods CG, Kosyk O, Bradford BU, Ross PK, **Burns AM**, Cunningham ML, Qu P, Ibrahim JG, Rusyn I. 2007. Time course investigation of PPARalpha- and Kupffer cell-dependent effects of WY-14,643 in mouse liver using microarray gene expression. Toxicol Appl Pharmacol 225(3):267-77; doi: 10.1016/j.taap.2007.08.028.

Hays T, Rusyn I, **Burns AM**, Kennett MJ, Ward JM, Gonzalez FJ, Peters JM. 2005. Role of peroxisome proliferator-activated receptor-alpha (PPARalpha) in bezafibrate-induced hepatocarcinogenesis and cholestasis. Carcinogenesis 26(1):219-227; doi: 10.1093/carcin/bgh285.

Kim DJ, Murray I, **Burns AM**, Gonzalez FJ, Perdew GH, Peters JM. 2005. Peroxisome proliferator-activated receptor-beta/delta inhibits epidermal cell proliferation by down-regulation of kinase activity. J Biol Chem 280(10):9519-9527; doi: 10.1074/jbc.M413808200.

Kim DJ, Akiyama TE, Harman FS, **Burns AM**, Shan W, Ward JM, Kennett MJ, Gonzalez FJ, Peters JM. 2004. Peroxisome proliferator-activated receptor beta (delta)-dependent regulation of ubiquitin C expression contributes to attenuation of skin carcinogenesis. J Biol Chem 279(22):23719-23727; doi: 10.1074/jbc.M312063200.

Peters JM, Aoyama T, **Burns AM**, Gonzalez FJ. 2003. Bezafibrate is a dual ligand for PPARalpha and PPARbeta: Studies using null mice. Biochim Biophys Acta 1632(1-3):80-89; doi: 10.1016/s1388-1981(03)00065-9.

ABSTRACTS AND PRESENTATIONS

Bogar L, Yale K, Allen L, **Burns A**. Airborne silica from bentonite clay cat litter: An evaluation of potential non-occupational exposure and respiratory health risks. Abstract 4760, Society of Toxicology 64th Annual Meeting, Orlando, FL, March 2025.

Bogar L, **Burns A**, Ierardi M, Yale K. Updated potential airborne asbestos exposure and risk associated with the historical use of cosmetic talcum powder products. Abstract 3607, Society of Toxicology 63rd Annual Meeting, Salt Lake City, UT, March 2024.

Burns AM, Ierardi AM. Risk evaluation of inhaled particulates during pressed powder makeup application. Abstract 3602, Society of Toxicology 63rd Annual Meeting, Salt Lake City, UT, March 2024.

Burns AM, Benson S, Best E, Hollins D, Finley B. An ecological epidemiology investigation of talc consumption in the US and trends in female cancer rates. Abstract 1881, Society of Toxicology 57th Annual Meeting, San Antonio, TX, March 2018.

Shay Hynd EC, Ierardi AM, **Burns AM**, Finley BL. Derivation of a chronic oral RfD for antimony. Abstract 3448, Society of Toxicology 57th Annual Meeting, San Antonio, TX, March 2018.

Burns AM, Unice KM, Banducci AM, Barlow CA, Sahmel J. Potential airborne asbestos exposures associated with the historical use of cosmetic talc products. Abstract 1885, Society of Toxicology 56th Annual Meeting, Baltimore, MD, March 2017.

Finley BL, Scott PK, **Burns AM**, Marsh GM. Does PCB exposure cause non-Hodgkins lymphoma? A weight of evidence evaluation. Abstract 3240, Society of Toxicology 56th Annual Meeting, Baltimore, MD, March 2017.

Burns AM, Finley BL. Potential tremolite exposures associated with talc-containing products. Abstract 2672, Society of Toxicology 55th Annual Meeting, New Orleans LA, March 2016.

Barlow CA, Sahmel J, Madl AK, Donovan BL, Gaffney SH, **Burns AM**, Lee RJ, Van Orden D, Paustenbach DJ. Evaluation of chrysotile adherence to clothing exposed to known airborne asbestos concentrations and subsequent to vigorous shaking. International Society of Exposure Science (ISES) 22nd Annual Meeting, Seattle, WA, 2012.

Burns AM, Panko JM, Kreider ML, Unice KM, Gaffney SH, Paustenbach DJ, Booher LE, Gelatt RH. Job-based analysis of benzene air concentrations associated with refinery operations. Abstract 1851, Society of Toxicology 49th Annual Meeting, Salt Lake City, UT, March 2010.

Shay EC, **Burns AM**, Sweet LI. Exposure and health risk assessment for children and adults potentially exposed to brominated flame retardants on televisions and in house dust. Abstract 1021, Society of Toxicology 49th Annual Meeting, Salt Lake City, UT, March 2010.

Panko JM, Gaffney SH, Kreider ML, Unice KM, **Burns AM**, Paustenbach DJ, Booher LE, Gelatt RH. Job and task-based analysis of benzene air concentrations associated with refinery operations. Benzene 2009: Health Effects and Mechanisms of Bone Marrow Toxicity; Implications for t-AML and the Mode of Action Framework, Munich, Germany, 2009.

Widner T, Paustenbach DJ, Gaffney SH, Panko JM, Unice KM, **Burns AM**, Kreider ML, Gelatt RH, Booher LE. Airborne benzene concentrations associated with dock operations at the ExxonMobil refinery, Baytown, Texas (1978-2007). Presentation #243, American Industrial Hygiene Conference and Exhibition, Toronto, Ontario, 2009.

Gaffney SH, Kreider ML, Unice KM, **Burns AM**, Paustenbach DJ, Booher LE, Gelatt RH, Panko JM. Benzene exposure in refinery workers (1976-2006). Abstract 864, International Society for Environmental Epidemiology & International Society of Exposure Analysis 2008: Joint Annual Conference, Exposure and Health in a Global Environment, Pasadena, CA, 2008.

Kreider ML, Unice KM, Panko JM, **Burns AM**, Widner TE, Paustenbach DJ, Booher LE, Gelatt RH, Gaffney SH. Occupational exposure to benzene the ExxonMobil refinery in Joliet, Illinois (1977-2006). Abstract 227, Society of Toxicology 47th Annual Meeting. Abstract 227, Seattle, WA, March 2008.

Panko JM, **Burns AM**, Unice KM, Kreider ML, Gaffney SH, Paustenbach DJ. Benzene exposure in refinery workers: Baytown, TX (1978-2006). Poster Session PO127, Abstract 191, American Industrial Hygiene Conference and Exposition, Minneapolis, MN, 2008.

Burns AM, Woods CG, Rusyn I. Regulation of the mevalonate pathway influences proliferative effects of Wy-14,643 in mouse liver. Abstract 864, Society of Toxicology 46th Annual Meeting Charlotte, NC, March 2007.

Woods CG, **Burns AM**, Bradford BU, Threadgill DW, Cunningham ML, Rusyn I. The role of differences in expression of PPARalpha between mouse strains in pleotropic response to peroxisome proliferators. Abstract 627, Society of Toxicology 46th Annual Meeting, Charlotte, NC, March 2007.