

Exponent®
Engineering & Scientific Consulting

Kehley Davies, Ph.D.

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Professional Profile

Dr. Davies is a Senior Scientist in Exponent's Environmental & Earth Sciences practice, specializing in the assessment, analysis, and interpretation of analytical chemistry data; data quality assessment; technical oversight of environmental testing laboratories; and chemical fingerprinting.

Dr. Davies leverages her expansive technical knowledge as an analytical chemist to conduct in-depth processing, analyzing, and interpreting of environmental chemistry data to support chemical forensic and fate and transport assessments in a variety of environmental contexts, such as product stewardship, regulatory and compliance evaluations, spill response, contaminated site investigations and remediations, and litigation support.

Prior to joining Exponent, Dr. Davies worked in several laboratory environments and provided analytical technical expertise in a wide variety of analytical techniques, including chromatography with and without mass spectrometry (e.g., GC, LC, GPC, IC, GC-MS, LC-MS/MS, LC-TOF), spectroscopy (e.g., UV-Vis, FTIR, XRF, ICP-OES, AA), thermal analysis (e.g., TGA, DSC), and imaging (e.g., SEM).

Dr. Davies performed and led both targeted and comprehensive chemical analysis to evaluate product compositions and assess complex materials during root cause analyses of issues related to quality, contamination, and stability. She applied her experience to help internal and external clients determine the source and potential impacts of chemical contamination in a range of products. In addition, Dr. Davies provided analytical characterization in support of product registration under regulatory drivers including Registration, Evaluation, Authorisation and Restriction of Chemicals (REACh) and Toxic Substances Control Act (TSCA).

Dr. Davies also led the development, validation, and implementation of analytical procedures for monitoring plant protection products and pharmaceuticals in complex environmental matrices. In her role as study director, Dr. Davies ensured validated methods met the requirements of established US and European regulatory guidelines (e.g., SANCO & SANTE, OECD) in accordance with rigorous quality assurance and good laboratory practice (GLP) procedures. Upon the initiation of associated biological exposure studies, Dr. Davies then acted as principal analyst to manage the conduct of these methods for all analytical work, including the interpretation and evaluation of resultant data.

Academic Credentials & Professional Honors

Ph.D., Analytical Chemistry, University of Massachusetts, Lowell, 2019

M.S., Analytical Chemistry, University of Connecticut, 2011

B.A., Chemistry, Wheaton College, 2010

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University of Massachusetts Lowell, Graduate Student of the Year, 2018

National Science Foundation, East Asia and Pacific Summer Institutes (EAPSI) Fellow, 2017

Prior Experience

Analytical Technical Manager, Ingevity, 2023-2025

Senior Analytical Chemist, Ingevity, 2022-2023

Staff Scientist II, Eurofins EAG Agroscience, 2019-2022

Chemist II, Calloway Labs, 2012-2015

Professional Affiliations

American Chemical Society (ACS)

ASTM International

Society of Environmental Toxicology and Chemistry (SETAC)

ABA Section of Environment, Energy, and Resources (SEER)

Women in Chemicals (WIC)

Association for Women in Science (AWIS)

American Association for the Advancement of Science (AAAS)

Publications

Davies K, Ryan DK. Selective production of naphthalene from methanol by photocatalysis on nanostructured cobalt particles. Catalysis Today 2020; 350:142-148. doi: 10.1016/j.cattod.2019.07.023

Presentations

Davies K, Ryan DK. Wavelength dependence on photocatalytic carbon dioxide reaction with methanol over nanostructured cobalt catalyst. American Chemical Society conference, Boston, MA, 2018.

Davies K, Farrell E, Soule J, Sobkowitz-Kline M, Ryan DK. Case study of polymer compatibility with ingredients in cosmetic products. American Chemical Society conference, Boston, MA, 2018.

Farrell E, Davies K, Ryan DK. Photodecomposition of liquids in carbon dioxide enriched environment by nanostructured cobalt catalyst. American Chemical Society conference, Boston, MA, 2018.

Davies K, Ryan DK. Production of naphthalene from carbon dioxide and methanol by photocatalysis using nanostructured cobalt. American Chemical Society conference, Washington, DC, 2017.

Project Experience

Environmental Sample Collection and Data Validation

Performed field sampling activities at residential properties surrounding a former petroleum processing facility to evaluate impact claims to water resources. Coordinated with subcontract analytical laboratories performing the chemical analyses and validated and managed the resulting chemistry data.

Oversaw commercial laboratory analyses and validated and managed the resulting chemistry data for samples collected from different media (e.g., soil, sediment, aqueous, and product samples). The data included analysis of PFAS, parent and alkylated PAHs, dioxin/furan compounds, and PCBs. Work conducted as part of evaluations of historical industrial operations and claims of environmental impact and product assessment and liability claims.

Data Management and Optimization

Compiled data from multiple historic sources into usable databases and assessed data for fitness-for-use. Processed, assessed, and managed large environmental databases of chemistry for multiple projects associated with contaminated sediments, remediation investigations at former petroleum refineries and oil spill investigations.

Provided technical support related to identification and measurement of PFAS by mass spectrometric methods in support of litigation matters.