



## Amy I. Hrdina, Ph.D.

### Senior Environmental Chemist

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### Areas of Expertise

- Secondary Organic Aerosol
- Indoor/Outdoor Air Quality
- Atmospheric Fate & Transport
- Environmental Sampling & Data Interpretation
- Contaminant Fate & Transport
- Read-Across Assessment

### Education

- Ph.D., Environmental Chemistry, University of Toronto
- M.Sc., Analytical Chemistry, Carleton University
- B.Sc., Chemistry, Carleton University

Dr. Hrdina is an atmospheric chemist with a broad background in materials and analytical chemistry. She specializes in the fate and transport of contaminants throughout the environment, with an emphasis on atmospheric chemistry and transport (*i.e.*, secondary air pollutants). At Gradient, she applies her expertise to a range of projects involving source identification, impact of industrial operations on local air quality, and regional-scale assessments of the potential transport and effects of chemicals across counties.

Prior to joining Gradient, she conducted field campaigns monitoring criteria pollutants, including trace gases, PM<sub>2.5</sub>, and PM<sub>10</sub>. She has been involved in several large outdoor air quality campaigns in collaboration with NOAA and US EPA. Her Ph.D. work investigated the sources, fate, and transport of atmospheric ammonia and its role in secondary particle formation. Dr. Hrdina spent her postdoctoral associate training at MIT, studying how the toxicity of polycyclic aromatic hydrocarbons (PAHs) in the atmosphere can change due to atmospheric oxidation. She has many publications in the general areas of chemistry, atmospheric science, and biosphere-atmosphere exchange.

### Selected Projects

**PFAS Source and Transport Evaluation:** Examined potential PFAS sources and transport through groundwater and their impact on a public drinking water supply. Reviewed biotransformation literature in a meta-analysis to evaluate potential alteration of source materials.

**Read-Across Assessment:** Determined read-across chemical analogs for substances without readily available toxicity data to ensure the safe use of chemicals and consumer products, minimize analytical costs and dependence on animal testing, and assist in compliance with hazard communication frameworks.

**Airborne Pollutant Analysis:** Evaluated the potential for atmospheric transport of airborne pollutants based on meteorological data analysis. Critically reviewed, evaluated, and summarized chemical fingerprinting, opposing expert reports.

### Selected Publications and Presentations

**Hrdina, A;** Kohale, IN; Kaushal, S; Kelly, JM; Selin, NE; Engelward, BP; Kroll, JH. 2022. "The parallel transformations of polycyclic aromatic hydrocarbons in the body and in the atmosphere." *Environ. Health Perspect.* 130:2.

Ye, Q; Krechmer, JE; Shutter, JD; Barber, VP; Li, Y; Helstrom, E; Franco, LJ; Cox, JL; **Hrdina, A;** Goss, MB; Tahsini, N; Canagaratna, MR; Keutsch, FN; Kroll, JH. 2021. "Real-time laboratory measurements of VOC emissions, removal rates, and byproduct formation from consumer-grade oxidation-based air cleaners." *Environ. Sci. Tech. Lett.* 8(12):1020-1025.

Ji, X; Zhao, J; Jung, S; **Hrdina, A;** Wolf, M; Yang, X; Vaarstra, G; Xie, H; Lu, A; Welsch, R; Wang, EN; Li, L; Cziczko, D; Kong, J. 2021. "Bottom-up synthesized all-thermal-catalyst aerogels for heat-regenerative air filtration." *Nano Lett.* 21(19):8160-8165.

Kelly, JM; Ivatt, PD; Evans, MJ; Kroll, JH; **Hrdina, A;** Kohale, IN; White, FM; Engelward, BP; Selin, NE. 2021. "Global cancer risk from unregulated polycyclic aromatic hydrocarbons." *GeoHealth* 5(9):1-19.

**Hrdina, A;** Kroll, J; Kaushal, S; Engelward, BP. 2021. "The Effects of Atmospheric Oxidation on the Mutagenic Potential of Benzo[a]pyrene Aerosol Particles." Presented at the American Geophysical Union Assembly, New Orleans, LA, December 13-17.

**Hrdina, A;** Rowe, JC; Kaushal, S; Engelward, BP; Kroll, JH. 2021. "Evolving Toxicity of Heterogeneously Oxidized Benzo[a]pyrene Aerosol Particles." Presented at American Association for Aerosol Research, virtual, October 18-22.

**Hrdina, A;** Kroll, J; Kohale, I; Engelward, BP. 2020. "The Parallel Fate and Transformation of Toxins in the Body and the Atmosphere." Presented at the American Geophysical Union Assembly, virtual, December 1-17.