

Grayson Abele, B.S.
Toxicologist

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Academic and Professional Profile

Grayson Abele is a Toxicologist and consultant with Paustenbach & Associates specializing in human health risk assessments, environmental toxicology, computational predictive toxicology, occupational epidemiology, state-of-the-art reviews, and consumer product toxicology. Currently focused on asbestos, e-cigarettes, benzene, volatile organic compounds (and specifically air emissions of gas stoves), 4-aminobiphenyl, paraquat, aspartame, pharmaceuticals, radionuclides, talcum powder, contaminants in food or consumer products, and fluorinated compounds. He holds a Bachelor's of Science in Biophysics from the University of Southern California.

Education and Degrees Earned

- Bachelor's Degree in Biophysics, The University of Southern California, 2018

Experience Summary (Professional Career)

Paustenbach and Associates
Toxicologist
Boulder, Colorado
November 2020 – Present

- Consultant in environmental and occupational toxicology, consumer products toxicology, exposure and risk assessment, occupational health, industrial hygiene, and safety.
- Currently focused on asbestos, e-cigarettes, radiation, pesticides, fluorinated compounds, VOCs, environmental toxicology, benzene, home pollution, consumer products, and food contamination.
- Involved in litigation work, conducting risk assessments, conducting exposure estimates, reviewing and synthesizing published literature, interpretation of novel toxicology data, study protocol design, simulation study design, and state-of-the-art knowledge analysis.

- Project manager for various litigation and non-litigation clients, including large-scale projects lasting multiple years.
- Staff supervisor providing guidance to other staff on technical development, career development, and project work.

Cardno ChemRisk
Associate Health Scientist
Aliso Viejo, California
June 2018 – October 2020

- Consultant in toxicology, consumer products, risk assessment occupational health, and industrial hygiene.
- Focused on asbestos, talc, e-cigarettes, COVID-19, and cannabis toxicology.

Key Projects (Partial List)

1. **Asbestos in friction products.** We were retained to determine whether exposures to asbestos through the use of automotive friction products such as brakes or clutches may result in exposures significant enough to increase risk of disease. This involved performing exposure estimates, synthesizing published literature, and reviewing available sampling data to determine potential risks. We have also investigated state-of-the-art knowledge regarding the use of asbestos and policies to control its release at various critical time periods across the 1900s (2020-2023).
2. **Potential contaminant in hair dye.** It was claimed that a user of a hair dye developed cancer as a result of the product's contamination with the carcinogen 4-aminobiphenyl (4-ABP). We were retained to determine whether the risks posed by the potential exposure would be sufficient to increase their risk of cancer. We performed an exposure estimate, reviewed the available literature, synthesized the opinions of relevant government bodies or agencies, and ultimately compared the user's exposure to available health-based guidance values to show the user was not at an increased risk of developing cancer from their use of the hair dye (2021-2023).
3. **Nitrosamines in pharmaceuticals.** Reviewed claims that n-nitrosodimethylamine (NDMA) and n-nitrosodiethylamine (NDEA) contamination in various drug types as well as n-nitrosime formation during production resulted in an increased risk of cancer in users. We synthesized the available literature to examine the suitability of the FDA's acceptable intake levels for n-nitrosamines. We also investigated methods by which n-nitrosamines generated during pharmaceutical manufacture could be quantified, including the use of QSAR (2022-2023).

4. **Asbestos exposure for firefighters.** We were retained to investigate whether a firefighter would be at an increased risk of developing cancer due to their potential asbestos exposures as a result of performing their occupational duties. We reviewed historical documentation and the published literature to determine whether a firefighter under specific conditions would be at an increased risk of developing cancer (2023).
5. **Wood ash safety review.** We created a safety data sheet for wood ash produced by an industrial boiler at the request of a client. We reviewed the available information on wood ash and provided a safety sheet which reviewed the physical properties, health and hazard data, ingredients, fire or explosion hazard, stability, and toxicology information among other information. We also investigated whether there were other potential risks during the storage or cooling of wood fly ash (2022-2023).
6. **Asbestos in lab products.** We determined whether individuals who used allegedly asbestos-containing lab products were at an increased risk of developing asbestos-related disease. We reviewed the published literature and available historical documentation on various lab products, including asbestos content. We estimated based on the available information we gathered the approximate exposure of the individuals to asbestos based on their reported use of the products, and concluded whether or not they would be at an increased risk for developing asbestos-related disease (2021-2023).
7. **Benzene exposures through gasoline.** We were asked to investigate whether an individual who had occupational exposures to gasoline pumps would be at an increased risk of developing cancer due to the presence of benzene in gasoline. We reviewed the individual's work history and duties to determine the circumstances and proximity in which they would potentially be in the vicinity of gasoline. We also analyzed available benzene sampling data of people with similar occupations as the individual in question, and reviewed the published literature and government publications on benzene. We used this information to provide a conclusion as to whether that individual was at an increased risk of cancer (2022-2023).
8. **Benzene aboard transport vessels.** We were asked to determine whether or not an individual who worked aboard transport vessels was at an increased risk of developing cancer due to trace benzene concentrations, as well as other chemicals. We reviewed the individual's exposure history based on available documentation, reviewed literature to find concentrations of benzene in the transported liquids, and estimated the individual's potential exposure to benzene under different scenarios. We also reviewed the epidemiology literature to determine at what concentrations, if any, benzene exposure could result in an increased risk of developing the cancer in question (2023).
9. **Consumer products potential contamination.** We were asked to determine whether a small number of a consumer product that had been in the vicinity of a potential chemical contamination would pose a health risk if those products were purchased and used. We investigated the contamination potential, the storage of the products, and the condition of the products. We provided a conclusion on whether or not the use of those products would result in any health hazards in end users (2023).

10. **Pipeline workers' exposure to radionuclides.** We investigated claims related to exposures of pipeline workers to naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive material (TENORM) during occupational duties. We performed a risk assessment of different work activities based on exposure to different radionuclides and compared to known occupational limits (2022-2023).
11. **Environmental exposure to asbestos through shipyard vicinity.** Investigated whether an individual who lived in the vicinity of a shipyard was exposed to asbestos levels significant enough to increase their risk of cancer. We reviewed a number of historical documents and sampling records to determine ambient levels of asbestos near shipyards, as well as relevant historical testimony (2022-2023).
12. **Analysis of asbestos in respirators.** We were retained to determine whether or not an individual who had family members who worked in the vicinity of the production of asbestos filters for respirators was at an increased risk of developing cancer. This involved a review of the available documentation on the products as well as the exposure history of the individual and the family members involved (2022-2023).
13. **Risk assessment of e-cigarettes.** We were retained to determine the potential health hazards posed by the use of e-cigarettes relative to smoking conventional cigarettes. This involved significant literature review, individually profiling different e-cigarette liquid ingredients, and analyzing known use patterns. We investigated respiratory effects, carcinogenicity, mutagenicity and genotoxicity, and other critical health endpoints. We synthesized toxicology data from a variety of sources. We provided conclusions across a number of projects on the relative risks of using e-cigarettes relative to smoking conventional cigarettes (2020-2023).
14. **SARs-CoV-2 in occupational settings.** We were asked to, in several different projects, investigate the potential risk of infection of workers by SARs-CoV-2 (and ultimately COVID-19) due to transmission in an occupational setting. We investigated claims that workers were at an increased risk of developing COVID-19 due to workplace attendance, whether the safety policies enacted were within known guidelines, and potential loss of productivity due to workplace closures or disruptions. This involved assessments of the rapidly evolving state-of-the-art knowledge and government guidelines regarding COVID-19 from 2020 through 2022 (2021-2022).
15. **Health risks of talcum powder in cosmetics.** Evaluated allegations that talcum powder in cosmetic products may result in increased risks of cancer due to the alleged presence of asbestos fibers. We performed an exposure estimate and quantified an approximate level of asbestos the user was potentially exposed to, and compared it to known NOAELs for their cancer. We also reviewed historic supply information to determine where the talcum powder was sourced from, and whether those sources had historically ever shown signs of asbestos contamination (2022).

16. **Toxicity of paraquat.** We investigated the toxicity of paraquat as it pertains to occupational exposures in humans. This involved both a state-of-the-art review of the evolution of knowledge about the potential toxicity of paraquat over time as well as a review of the published literature to determine the toxicological profile of the chemical. We investigated, as a few examples, the neurotoxicity and hepatotoxicity of the chemical to determine whether there was evidence for such effects and whether any damage was transient or lasting (2022).
17. **Quantitative Structure-Activity Relationship analysis of e-cigarette aerosol constituents.** Performed computational analysis of the toxicological hazards posed by hundreds of e-cigarette aerosol constituents and volatilization byproducts through use of a suite of QSAR software programs, then combined the data into a comprehensive analysis (2018-2020).
18. **Creation of toxicological profiles for e-cigarette Harmful and Potentially Harmful Constituents (HPHCs).** Synthesized data from published literature, public databases, and computational analyses on FDA-determined HPHCs for e-cigarettes into toxicological profiles that summarized the expected effects of individual compounds on all endpoints relevant to human health (2018-2020).
19. **Comparison of the regulations of cannabis contaminants across different states.** Researched and performed a comparison of the contaminants regulated for recreational or medicinal cannabis use across various states (2019-2020).
20. **Creation of cannabidiol toxicological profile.** Created a toxicological profile for CBD use both orally and via inhalation in response to evolving uses of CBD with the continuing legalization of cannabis as well as the EVALI outbreak of 2019-2020 (2020).
21. **Creation of report of COVID-19 impact on industrial settings.** Assisted with the creation of a report on COVID-19 safety principles, based on known data and published recommendations by the CDC, to help ensure a safe continuation of work (2020).
22. **Analysis of currently-known health effects of polychlorinated biphenyls.** Researched and summarized the currently known health effects of PCBs with a focus on the concentrations of chemical needed to reasonably increase risk of adverse health effects (2020).
23. **Creation of Physiologically Based Pharmacokinetic Model for Nicotine.** Assisted in the creation of a PBPK model for nicotine following the inhalation of nicotine from e-cigarettes of various nicotine concentrations in the R coding language (2019).
24. **Analysis of talcum powder documentation and state-of-the-art analysis.** Reviewed historic talc documentation and published literature to determine historic levels of tremolite asbestos in talc, or the lack thereof, as well as testing procedures used over time (2018-2019).

Published Abstracts

1. Dennis Paustenbach, **Grayson Abele**, Jonathan Heywood, and Melinda Donnell. A Methodology for Estimating 4-ABP Dermal Intake via Contaminated Consumer Products. Society of Toxicology 61st Annual Meeting. March 27th through 31st. San Diego, California, USA. Poster Presentation.

Membership and Service to Professional Societies

- The International Society of Regulatory Toxicology & Pharmacology, Council Member from 2019 – Present
- Society of Toxicology, Associate member