

TCAS

Toxicology Consultants & Assessment Specialists, LLC

FORENSIC TOXICOLOGY

ENVIRONMENTAL TESTING

TOXIC EXPOSURES

RISK ASSESSMENT

CAUSATION EVALUATION

Case Studies in Toxicology

Case studies are impartial and objective summaries of toxicological matters wherein TCAS was retained for the purpose of assessing toxicological factors. In many cases the assessment led to a determination of impairment, disease, death causation or no causation. It is our hope that these case studies will familiarize and educate readers with basic concepts in forensic toxicology.

Each case is unique and the toxicologist must always consider the context and circumstances in a toxicological assessment or forensic investigation. What may hold true for one case may be completely different for another, *even if the same substances or circumstances are present*. For example, dosage, exposure characteristics, duration and additive effects of a particular substance are likely to be different in every case. Additionally, federal and state regulatory guidance varies widely by region, by substance and with respect to toxicity standards. Thus, the outcome of one case history in no way implies a similar outcome in other cases. Indeed, in some cases the claims were shown to be scientifically invalid with successful defense verdicts resulting from TCAS assessments.

This page also presents a series of [toxic exposure studies](#) for selected substances. Toxic exposure studies provide descriptive and instructional information pertaining to some of the various toxic agents for which TCAS has been retained on numerous occasions.



TCAS case studies are impartial and objective summaries of toxicological investigations

Case Study Archives

Toxicology case studies provide historical information pertaining to past cases typically involving application of a multiplicity of disciplines. Each study contains an outline of facts, events and circumstances surrounding the case, a description of some of the health and legal aspects, an overview of the steps taken by TCAS to address the case requirements and a brief summary of the outcome. Names and identifying information are generally not provided due to privacy and legal considerations.



Case Studies in Toxicology: Alcohol Intoxication Leads to Fatal Boating Accident

This case study summarizes the events leading up to and following a fatal boating accident on Florida's intracoastal waterway. It illustrates the role of back-extrapolation and weight-of-evidence (WOE) in an alcoholic impairment assessment and demonstrates how behavior and judgment on the part of the defendant can be considered as evidential in a toxicological analysis... ([more](#))



Case Studies in Toxicology: Mold in Motor Home Causes Aspergilloma

This case study illustrates the role of toxicological weight-of-evidence (WOE) in a case involving exposure to mold inside a motor home. It also illustrates how analytical measurements and medical history can be considered as evidential in a toxicological analysis. Shortly after purchasing a new motor home, the owner noticed... ([more](#))



Case Studies in Toxicology: Toxicological Assessment of Phosphoric Acid

This case study summarizes the events leading up to and following the filing of a lawsuit by a woman against her employer for an injury allegedly suffered as a consequence of a toxic exposure to a cleaning chemical. It illustrates the important role a toxicological assessment can play in litigation and demonstrates how inference and assumption can... ([more](#))



Case Studies in Toxicology: Toxic Tort: Trichloroethylene in Residential Water Supply

This case study summarizes the events surrounding the filing of a lawsuit by residents against a company for allegedly contaminating the local water supply with trichloroethylene, a chemical used in industrial cleaning and degreasing. It further illustrates how exposure evidence, historical factors, a residential questionnaire and a toxicological risk... ([more](#))



Case Studies in Toxicology: Cleaning Chemical Exposure

This case study recounts the circumstances surrounding a woman's claims that exposure to a chemical stripping agent caused burns, infection and damage to her immune system. The outcome illustrates the importance of validating claims against medical history and assessing toxicological factors according to peer-reviewed literature in order to establish reasonable... ([more](#))



Case Studies in Toxicology: Postmortem Alcohol Formation in a Severely Burned Victim

In this case study, a passenger severely injured in a motor vehicle fire filed a lawsuit against the vehicle manufacturer. The case partially rested on whether or not the driver could be shown to have been intoxicated. The surprising outcome was based on a little known but well-documented fact concerning endogenous alcohol which can be created following... ([more](#))



Case Studies in Toxicology: Hair Samples Yield Incorrect Cocaine Use Conclusion

This case study recounts the circumstances relating to a teacher faced with pending dismissal for alleged drug use based on erroneous interpretation of cocaine in hair test samples. This case illustrates the importance of applying a correct, peer-reviewed scientific methodology to laboratory analyses and interpreting the results in line with established... ([more](#))



Case Studies in Toxicology: High-Level Petroleum Hydrocarbon Vapor Exposures Induce Toxic Encephalopathy

This case study demonstrates how causation can be demonstrated by weight-of-evidence (WOE) and how objective investigation of contributing factors can play a pivotal role in formulating an expert opinion to reasonable toxicological certainty. Toxic encephalopathy can be caused by repeated exposure to high-level refinery hydrocarbon vapors. A process engineer worked for seven... ([more](#))



Case Studies in Toxicology: Fatal Accident Caused by Long-Term Drug Use?

This case study summarizes the events following the death of an elderly man involved in a motor vehicle accident and demonstrates how pharmacological factors and behavior on the part of the defendant can be considered as evidential in a toxicological analysis... ([more](#))



Case Studies in Toxicology: Pesticide Exposure Leads to Sudden Death

This case study summarizes events relating to the death of a man with a history of seizure disorder who was fatally exposed to pesticides in his unventilated basement apartment. It illustrates the role of an impartial toxicological assessment in litigation involving pesticides... ([more](#))



Case Studies in Toxicology: Polypharmacology Induces "Sleep Driving"

This case study illustrates the role of toxicological weight-of-evidence (WOE) in a motor vehicle accident case involving polypharmacology and antidepressants. It also illustrates how drug interactions can be considered evidential in a toxicological causation assessment. On the evening prior to a serious motor... ([more](#))



Case Studies in Toxicology: Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) Create Residential Hazard

This case study reviews a residential contamination case involving local residents exposed to water contaminated with PAHs and PCBs flooding their properties. It illustrates the importance of applying generally-accepted, peer-reviewed toxicological assessment methods and the steps necessary to present scientifically credible findings in litigation.... ([more](#))



Case Studies in Toxicology: Cass Lake: Mass Toxic Tort

This case study summarizes the events leading up to and following a widespread contamination case involving local residents and a company disclaiming responsibility for damages. It illustrates the role of weight-of-evidence (WOE) in a toxicological analysis and demonstrates how meticulous attention to detail can be a deciding factor in a complex assessment... ([more](#))



Case Studies in Toxicology: Acute Marijuana Intoxication

This case study illustrates how circumstantial evidence can be misinterpreted and how drug-impaired judgment and behavior can be regarded as evidential in a toxicological causation assessment. A motorcyclist was fatally injured when he collided with a city bus in a business district... ([more](#))

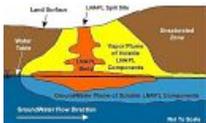
Toxic Exposure Studies

Toxic exposure studies provide descriptive and instructional information pertaining to some of the various toxic agents with which TCAS has been involved on numerous occasions. Studies outline the steps typically required to assemble relevant site data and assess exposure, toxicity and risk. In some instances we have included demonstratives TCAS has used in past hearings and trials for educational and instructional purposes. No names or identifying information have been included due to privacy and legal considerations.



Toxic Exposure Studies: TCDD Dioxin Toxicology

TCAS has been involved in numerous cases involving TCDD exposures. We have had considerable experience in conducting toxicological risk assessments for TCDD, PCBs and other dioxin congeners. As part of our approach to presenting toxicological information in a manner that can be easily understood by a judge and jury, we have produced many demonstratives... [\(more\)](#)



Toxic Exposure Studies: Forensic Analysis of Light Non-Aqueous Phase Liquid (LNAPL)

For more than two decades, TCAS has been retained in cases involving LNAPLs. We have significant experience in establishing the source(s), age and characteristics of LNAPL. We have performed LNAPL risk assessments on behalf of individuals, private industry and government agencies such as the New York State DEC, New Jersey DEC and others . We have offered unbiased... [\(more\)](#)

A Message from Dr. William R. Sawyer
Chief Toxicologist, TCAS, LLC



"Toxicology case studies provide readers with insights into some of the cases with which we have been involved. TCAS is committed to providing our clients with the full benefit of our experience in the widest possible range of capacities."

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