

NTSB INTERPRETATION OF BLOOD ALCOHOL LEVELS FOUND IN TRANSPORTATION OPERATORS

In its investigations, the National Transportation Safety Board routinely requests complete toxicology evaluation on all transportation operators who are fatally injured. In around 10% of such evaluations, ethanol is detected in the blood and/or tissues. In many of these cases, particularly when significant decomposition has taken place, the ethanol present is the result of production of alcohol by microorganisms in the tissues after death, and does not represent the ingestion of alcohol. When vitreous fluid and/or urine (substances which do not normally support the postmortem production of alcohol) are available for testing, it may be possible to determine conclusively whether the ethanol present was a result of postmortem production of alcohol or ingestion of alcohol. Vitreous fluid and urine typically cannot be obtained from bodies in relatively advanced stages of decomposition, and a conclusive determination regarding the source of ethanol in such bodies is difficult or impossible.

When laboratory evaluation cannot conclusively determine whether the ethanol found is the result of post-mortem production, NTSB investigators will review all the available information regarding the accident so that the Safety Board can determine whether ethanol resulted from post-mortem production or ingestion. Factors that are considered include (but are not limited to): extent of putrefaction (decay) of the specimens, time since death, temperature of the surroundings, immersion, levels of ethanol found, distribution of ethanol in tissues, and any evidence suggesting or eliminating the possibility of alcohol ingestion prior to or during vehicle operation. An article reviewing the experience of the FAA Civil Aeromedical Institute Toxicology and Accident Research Laboratory with postmortem alcohol production in fatal aircraft accidents was published in 1993.¹

¹ Canfield DV, Kupiec T, Huffine E. 1993. Postmortem Alcohol Production in Fatal Aircraft Accidents. *Journal of Forensic Sciences* 38:4, 914-917. [July].