Ethanol-Based Fuels May Suggest High Blood Alcohol Level in Client Automobile Crashes

By Adam J. Langino, Esq.

Did you know that in severe fuel-fed fire automobile crashes ethanol based fuels and microbial organisms may artificially elevate your client's blood alcohol level? A deeper investigation may be warranted in those instances when the test results claim your client was intoxicated but other evidence points that he or she was not.

Fuel-fed fires in automobile crashes are never clean. The passengers are often deceased and the damage to both the vehicle and person is often severe. In many instances, the passengers remain in the vehicle or on-scene for hours before their bodies are transported and properly stored.

In Colorado, if you drive with a blood alcohol level above 0.05% or 0.08%, you are either considered driving while impaired or under the influence having violated C.R.S. § 42-4-1201.

As we all know, alcoholic beverages, such as a beer, wine, or spirits, are drinks that contain ethanol. However, gasoline can contain ethanol, too.

For instance, E-10 gasoline is a fuel mixture of 10% ethanol and 90% gasoline. Since 2006, after the national introduction of an E-10 mandate, the use of ethanol-based gasoline has become increasingly popular. In fact, 96% of all gasoline sold in the U.S. is blended with some percentage of ethanol.[1] In Colorado, retailors are required to label any gasoline whose ethanol content exceeds two percent. The same is probably true in other states. By 2009, 29% of all gasoline in Florida was E-10 gasoline while the remaining gasoline being sold, even if not E-10, still contains ethanol alcohol to varying degrees.

In E-10 based fuel-fed fires, the ethanol contained within the gasoline has the potential to contaminate the deceased's blood when the deceased has sufficient open wounds to allow that contamination. This E-10 contamination is often left undetected by scientific analysis. A crude example: Remember that time when the burgers you cooked on the grill tasted like gasoline because you used too much starter fluid? That's because while the coals are burning the starter fluid vaporizes and the elements contained therein contact the burgers while they cook. The same concept applies to humans.

When hospitals or medical examiners measure a deceased's blood alcohol level they are determining the level of **ethanol** in that deceased's blood. More often than not, the blood analysis is performed by an outside laboratory utilizing a process called gas chromatography-mass spectrometry ("GCMS"). GCMS is a process where a sample (e.g., a person's blood) is volatized for a period of time allowing the elements contained therein to be specifically identified based upon the time it takes for each element to elute. If that sounds too confusing, imagine GCMS as a foot race with each runner finishing at different times – the distinct finish times allow the scientists to identify the particular elements. GCMS is considered the "gold standard" for forensic identification. However, GCMS is ill-equipped to rule-out E-10 gasoline contamination because most forensic laboratories run their GCMS machines for fewer than five minutes. This shortened run time prevents GCMS from detecting the elements contained within the sample that would have "finished the race" after five minutes. The vast majority of elements contained within E-10 gasoline take longer than five minutes to elute. However, the ethanol contained in E-10 elutes at the same time as ethanol contained within any drinking alcohol. This provides the potential for that "gold standard" GCMS blood alcohol level reading to be "artificially spiked" by the ethanol contained in undetected E-10 gasoline.

Fuel-fed fires also have the potential to create intoxication issues in addition to the E-10 gasoline problems discussed above. In fuel-fed fires, the deceased's epidermis is often burned off. Due to the severity of damage to the car and body the deceased often remains on-scene for hours before being placed in a climate controlled contaminant free location. A time lapse as small as a few hours opens the body to microbial infection by bacteria and yeast that is inherently present in the environment. Due to its humid climate, Florida has an exceptionally high level of microbial organisms in

its ambient atmosphere. Post-mortem microbial fermentation is a phenomenon where micro-organisms, such as fungus, yeast, and mold, all present in Florida's atmosphere, attack the deceased's open wounds. Within mere hours the microbes putrefy causing the rapid production of ethanol. The ethanol produced by post-mortem microbial fermentation is not distinguishable by GCMS from the ethanol produced by drinking alcohol. This too has the potential to "artificially spike" a GCMS reading.

For those reasons, in any fuel-fed fire product liability actions, great attention to detail must be emphasized during fact discovery. Obviously, you will need facts to establish that the deceased's drinking history does not correlate with the GCMS blood alcohol level reading. For instance, did the last person who saw the deceased observe slurring speech, blood shot or watery eyes, unsteadiness, or an odor of alcohol? What do the deceased's credit card statements reveal? Before the crash, was the deceased driving a safe speed, stopping for stop lights and stop signs, maintaining his or her lane, and driving for a substantial period of time without issue? While not all inclusive, answering those questions will help you and your expert toxicologist establish a timeline leading up to the crash, which in turn will help you educate the jury why that "gold standard" GCMS result is wrong.

The above considerations should be taken into account in any fuel-fed fire product liability action. Fears of comparative negligence should not deter Plaintiffs from holding corporations accountable in those instances where the testimonial evidence does not support scientific findings of intoxication. ▲▲▲

Adam J. Langino of Cohen Milstein, Palm Beach Gardens, Florida, focuses his practice on products liability, catastrophic injury, business litigation, and managed care litigation.

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Endnote:

[1] Renewable Fuels Association. "Choose Ethanol | Quick Facts." www.chooseethanol.com/pages/quick-facts/ last visited, Dec. 8, 2014.