



LSIS Case Study: Flame Jetting Hazard Phenomenon

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A couple of years ago, I had an investigation where family and friends were having a great time (no alcohol), gathered around a dinner table. Located on top and center of the table was a product commonly referred to as a "fire pot". Fire pots come in various shapes, sizes, manufacturers, and fuel sources. The smaller, "safe for indoor use" fire pots are generally used for ambience, and some even use them for cooking a marshmallow.

The particular model in question used Isopropyl alcohol or rubbing alcohol, which contains over a 90% alcohol. Isopropyl alcohol generally burns fairly clear, but is also highly flammable.

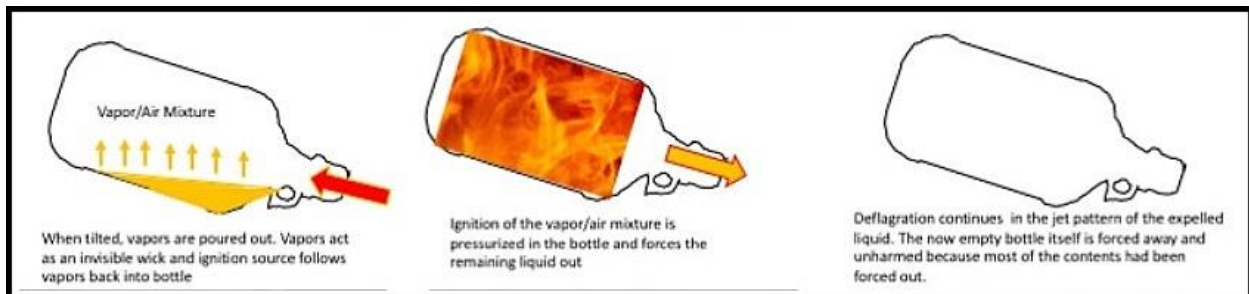
As the firepot on the dinner table appeared to run out of fuel, one family member decided to refill the small firepot reservoir. What the person did not realize was that there was still a tiny ember or flame at the bottom of the fuel reservoir.

As the person tipped the partially filled bottle of Isopropyl to about 90 degrees, a huge ball of flame instantly shot horizontally, 5 feet across the table, severely burning a person seated there.



Witnesses thought the person refilling the fire pot, intentionally sprayed burning fuel on the victim. The person that attempted to refill the fire pot was devastated, not understanding what happened.

I was employed to investigate the case as a possible product liability case. After interviewing a couple witnesses, I started my internet research into fire pot products, isopropyl alcohol, explosive fires, etc. After hours of extensive research, I found a few obscure articles and news reports of a phenomenon referred to as "Flame Jetting". Through my research, I found several people have been seriously burned and even killed as a result of Flame Jetting.



Flame Jetting occurs when a container, partially filled with a flammable liquid also holds gasses inside, and is poured on an open flame, ember, coal, etc. The flames rapidly ignite the pouring fuel, following it up and into the bottle where the internal gases ignite, creating an internal combustion. This results

in flame and fuel jetting out horizontally, sometimes 10 to 20 feet from the mouth of the container. Witnesses have described it as spewing out like a flamethrower.



Fire experts made three important recommendations.

1. Leave the device off for at least 30 minutes before refueling, and make sure it's cold to the touch.
2. Refuel away from people.
3. Use a fuel canister with a flame arrestor, a small mesh insert that prevents flame-jetting.

I contacted the clients to inform them of my investigative results and explained what I believed occurred based on witness statements, evidence, and my research. Neither the clients nor the law firm had ever heard of "Flame Jetting".

Fortunately, the person who was burned quickly recovered. The client, family, and friends were relieved and grateful that the cause was determined to be flame jetting as opposed to what witnesses thought initially was a malicious attack.

My job there forward was to further investigate the manufacturer, the product itself, related complaints and lawsuits, recalls, instructions, packaging, advertising, warnings, etc.

Click on the YouTube link below for an investigative report by City News (Ontario, Canada) on Flame Jetting.

<https://www.youtube.com/watch?v=cl86p3ZjuSM>

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ABOUT THE AUTHOR

Randall Alexander has been a Legal Investigator and California state-licensed investigator since 1999, specializing in Civil Litigation Support and Family Law Litigation. Randall served several years in multiple capacities with the California Association of Licensed Investigators, where he was specifically recognized for "Exceptional Service" to the association and its members.

In 2008, Randall was recognized as a Subject Matter Expert by the Bureau of Security and Investigative Services, a division of the California Department of Consumer Affairs. He has testified in civil and criminal matters in both state and federal courts, as well as in a state administrative hearing.

Randall earned his Associate of Arts in Paralegal Studies from the Southern California College of Business and Law, an American Bar Association-approved program where he completed coursework in: Advanced Legal Research, Torts & Personal Injury, Civil Litigation, Business Law Contracts, Criminal Law, Family Law Litigation, Legal Procedures, and Advanced Legal Writing. Additionally, Randall completed undergraduate coursework in Administration of Justice.