

International Association of Arson Investigators

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Hawaii Chapter Newsletter



The Hawaii Chapter has not met since our last newsletter so there is not much to report. Mr. Robert Rowe, from Los Angeles, will be our guest instructor for the conference in October. He retired a year ago from the City of Downey Fire Department. You can learn

more about him by going to www.pyrocop.com

He recently opened his investigation business and has been swamped with work. He has many years of experience investigating fires.

He is also a past NFPA 1 Uniform Fire Code Committee member. His presentation will include fire investigations and how it also ties in to the fire code requirements. It should be interesting. I am also scheduling Mr. David Cheng of the Consumer Product Safety Commis-

sion to discuss some of their agencies goals and how much of an important part we all play. In addition, I am in communication with the prosecutors office on Maui to talk to us about the recent arson laws passed in the State of Hawaii legislature and what we need to know. Stay tuned.

Aloha,
Val Martin
President

Testing the Fire Cause Hypothesis

By Fred Herrera, CFI

Over the years we have all heard the disclaimers regarding NFPA 921. Many recommend not taking it too seriously because it's only a guide, believing that we can't be held accountable for the information within. However, it doesn't matter that it's "only a guide." If this stand is taken as a defense for not

adhering to the recommendations of this "guide," be prepared to stand alone. This is the recognized text for investigative procedures. That is not the same as being the best publication we have available. Many of us have our favorites. Instead, it is the most widely accepted document from a diverse committee

of industry experts. The significance of the consensus committee approach is that it reduces the possibility of an individual agenda or opinion, which is possible in a text authored by one person.

Also, NFPA is well respected as an organization advocating scientifically-based consensus codes and standards. All of these aspects more or less qualify NFPA 921 as a standard in the legal community. The legal community doesn't care about the wording on the front cover, but whether the industry experts recognize it as a valid document. A look at the technical committee will show that this document has some industry horsepower behind it. However, it's perfectly acceptable not to adhere to all of the recommendations in NFPA 921 as long as there is a reasonable basis for the decision to deviate. One example is the use of lined evidence cans instead of the recommended unlined cans, because the lab that you use wants only lined cans submitted. There are many other possible scenarios throughout the text that may not be adhered to for various reasons.

That said, this article will examine one link of the Scientific Method described in NFPA 921; Test the Hypothesis (Deductive Reasoning). NFPA 921 has recommended the Systematic Approach, specifically the Scientific Method, for the fire scene examination. An examination of 2.3.6 Test the Hypothesis (Deductive Reasoning) reveals changes between the 1998 and 2001 editions. Probably the most significant change is the clarification that the deductive reasoning can be cognitive or experimental. An experimental examination of a hypothesis is something that we should strive to do whenever possible. No matter how many years of fire investigation or fire suppression experience we have accumulated, it is still a given that virtually all of that is post-fire, or at least, post-origin, experience. Any first-hand knowledge regarding the origin of fires and the ensuing fire behavior is gained by training classes or personal experimentation. The value of starting your

own fire is that there is no question of where and how the fire started and what fuel packages were present and in what configurations.

The following fires are examples where experimentation was of value toward making determinations regarding the cause.

Case:

A marine fiberglasser was working on the lazaret of a dry docked boat in a boatyard. The boat was not connected to shore power but there were extension cords on board to energize the work tools. Reportedly, the work performed that day was on a workbench behind the boat. The fiberglasser cleaned the area and stored the containers of resin, acetone, catalyst and putty on the portside lazaret of the boat. About one hour after leaving the scene a fire occurred in the boat. The area of origin was clearly around the containers left by the fiberglasser.

Yard workers stated that the fiberglasser had a reputation for rushing the work by over-catalyzing the resin and had caused a trashcan fire in the same manner with resin and rags. It sounded reasonable, but the fiberglasser insisted that there was no resin-catalyst mixture in any of the buckets and that even if he did over catalyze a mixture, it would only be from the standard two percent catalyst to maybe three or four percent. Otherwise, the resin would crack and the job would be ruined.

Employees of numerous surf and marine shops contacted believed that if too much catalyst were used in the resin there would be a fire; some believed they had experienced it. I decided to find out how much it took to make the fire occur. Using the same resin and catalyst involved in the loss, mixtures were set up, in the sun, at approximately the same time of day, at approximately the same ambient temperature. The mixture started out at two percent catalyst-to-resin, which made a nice chunk of light green cured resin and proceeded to a fifty percent mixture. The fifty percent mixture made a roiling mass of light brown foam-like material that didn't resemble cured

resin at all, but still no fire.

More tests were conducted with toothpicks and twisted paper towels, halfway immersed, but still no fire. The peak temperature of the fifty percent mixture was 660° F, which occurred about thirty minutes into the test as the resin furiously reacted, then dropped in temperature significantly. Of course, this is an unrealistic percentage that would not be used by the fiberglasser. In fact, at five percent catalyst-to-resin, only three percent over the standard amount, the normally light green resin turned brown and had large cracks throughout.

A torch was used on the outside of a pan of resin without catalyst, causing the resin to boil vigorously, with no autoignition occurring. However, when the open flame was raised high enough to reach the vapors, there was immediate ignition, with or without preheating.

This experimentation caused the determination that over-catalyzed resin was not the cause of the fire. Other possible causes were ignition of the ignitable vapors, (notably acetone or resin), by an unknown ignition source, or the fire was incendiary.

It turns out that Firefindings conducted similar tests and came up with the same results in 1997, (see Volume 5, Number 1, page 6). It's always nice to have independent confirmation of an opinion. It is noted, though, that the exclusion of over-catalyzed resin is not a unanimous opinion among the investigators involved. Physically test your hypothesis whenever possible. Reconstruct and ignite. If anyone is bothered by the smell, tell them NFPA 921 made you do it!

Articles are that of the writer and are not necessarily the opinions of the IAAI or the Hawaii Chapter of the IAAI.