Comparing the Response of Portable Hydrocarbon Detectors to Laboratory Analysis of Household Substrates
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Abstract:
Electronic hydrocarbon detectors have been commonly used in the field of fire investigations to aid in the possible location of ignitable liquid residues. These devices alert to the presence of volatile hydrocarbons to indicate a potential sampling location. In this study, the selectivity and sensitivity of two models of hydrocarbon detectors were examined. Sixteen burned and unburned substrates of various types were tested using both hydrocarbon detectors and the results were compared to laboratory analysis. Several substrates known to inherently contain petroleum products were chosen to evaluate the detector response. Since no ignitable liquids were found in these positive results, the positive result from the instrument indicated the presence of a petroleum product. Both detectors showed numerous false positive and false negative readings. The consistent use of the detectors proved to be difficult as the sensitivity varied greatly during use.

COHb Levels in Fire Victims and Origin Analysis
An ATF Case Study

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Abstract
The determination of the origin and cause of a fire is a difficult endeavor that requires fire investigators to follow the Scientific Method to reach testable hypotheses as to how a fire started. As part of this process, fire investigators must consider all information available to them in analyzing their developed hypotheses. In recent years there has been an argument put forward in the fire investigation community that a fatal fire victim’s carboxyhemoglobin (COHb) concentration is an important factor to consider when determining the origin of a fire. This argument has been argued in Indiana and Texas courts and was recognized by those courts to be newly discovered expert. Although the consideration of this fact is important in any fire investigation, this paper will focus on the importance of doing so in the context of a fatal fire.
The determination of the origin and cause of a fire is a complex task, often involving the skills of a fire investigator. Determining the area of origin and the correlation it has with the origin of a fire is crucial. Fire investigators must be meticulous in their analysis to avoid bias and ensure the hypothesis of the fire is supported by evidence. Pitfalls with allowing the COHb concentrations of fire victims to significantly influence the hypothesis of the fire must be avoided.

COHb (Carboxyhemoglobin) concentrations obtained post-mortem data from victims is important in any death investigation. Evidence by the court is recognized by those courts to be newly discovered when determining the origin of a fire. This argument has been an argument put forward in the fire investigation community over the years. As part of this process, fire investigators must understand the physical prevention, or containment of fire, including on-site hazard management.

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IAAI Government Affairs Team and the Advocacy Committee busy:

1) That the definition of "Suppression of fire" be modified, so as to read: "Suppression of fire means extinguishment, as –

2) That a definition of "On-site hazard management" be added, so as to read: "On-site hazard management, provided by any security, hazard management, and emergency, fire or emergency management who are employed by non-sworn personnel, as –

3) That all fire investigators, who are employed by non-sworn personnel, be included in the definition, as –"