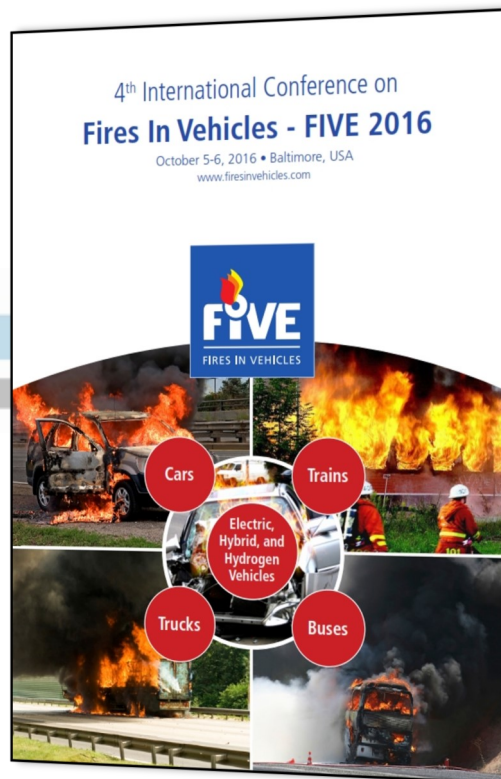


PUBLICATION:

***A Case Study in the Use of Reverse FMEA (rFMEA) and the Scientific Method
in a Fire Cause Determination***

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SYNOPSIS:

The fire investigation community relies on both NFPA®921 and NFPA®1033 as authoritative guidelines and standards. These texts and other prominent fire investigation publications identify the Scientific Method as the correct and preferred methodology for determining origin and cause. However, application and documentation of this methodology varies significantly.

Few tools exist for the practical application of the Scientific Method in fire investigations and those that do are rarely used or encountered. Such a formal tool should allow investigators to employing critical thinking skills in order to correctly infer specific conclusions. The tool should also be systematic, intuitive, reliable, and valid and serve to

document the entire process of hypothesis formulation through testing for future reference.

The authors previously developed and published “reverse Failure Modes and Effects Analysis (rFMEA)” as a methodology to apply the Scientific Method for fire cause determination. This paper overviews the rFMEA process and concepts, concentrating on the practical application of the methodology through a case study, demonstrating how it meets the objective of employing critical thinking skills to reach specific conclusions, and discussing its systematic and intuitive nature, validity, and reliability. rFMEA also provides comprehensive documentation of the entire process of hypothesis formulation.