



THE FIRE PROTECTION RESEARCH FOUNDATION

PROJECT SUMMARY

Effectiveness of Oven and Furnace Explosion Relief Requirements

29 April 2015

Background: NFPA 86, *Standard for Ovens and Furnaces*, has required explosion relief on specific ovens and furnaces for over 90 years. While the guidance has been adjusted over the years, the requirements remain incomplete, founded upon anecdotal information, prescriptive in nature, and out of step with guidance contained in NFPA 68, *Standard on Explosion Protection by Deflagration Venting*, and NFPA 69, *Standard on Explosion Prevention Systems*.

In order to adequately adjust the current requirements stipulated in NFPA 86 to properly reflect existing guidance and experienced conditions, the Technical Committee requires additional information on explosions in relation to ovens and furnaces. The necessary information includes the types of ovens and furnaces experiencing explosions, causes of explosion, outcome of explosions, including the control effectiveness, impact on people and property, as well as additional data to substantiate the redirection of explosion relief guidelines within NFPA 86.

Research Goal: The purpose of this project is to review the history of oven and furnace explosion incident and develop an oven and furnace explosion incident database, providing the necessary information and data to the NFPA 86 Technical Committee.

Project Tasks:

1. **Task 1: Historical Incident Review.** With the guidance and assistance of the Project Technical Panel, seek and acquire gas and dust explosion incident experience in ovens and dryers, including spray dryers which typically contain suspended dust clouds.
2. **Task 2: Incident Database.** Based on the information gathered in Task 1, extract and tabulate the data into a database, which should include the following relevant information: class and size of oven, materials processed, occurrence point of explosion during process cycle, explosion relief details, reported cause and contributing factors, and consequences of the event.
3. **Task 3: Final Report.** Produce a final report which includes the complete incident database and recommendations for future research.

Implementation: This research program will be conducted under the auspices of the Fire Protection Research Foundation in accordance with Foundation Policies and will be guided by a Project Technical Panel who will provide input to the project, recommend contractor selection, review periodic reports of progress and research results, and review the final project report.

Schedule:

Task 1 Interim Report	3 months after project initiation
Draft Final Report	5 months after project initiation
Final Report	6 months after project initiation