

Ethanol Tank Fire Workshop

- Summary of FPRF & NFPA Activities -

**Hyatt Place Kansas City Airport
Kansas City MO - November 1, 2011**



Fire Protection Research Foundation

- ◆ **initially founded by the NFPA, now a separate 501(c)3 organization**
- ◆ **mission: to plan and manage research projects and to communicate the results**
- ◆ **directly supports NFPA mission**
 - **code development efforts**
- ◆ **funding by NFPA**



Fire Protection Research Foundation

◆ some highlights

- Halon testing and Halon alternatives**
- fire risk assessment tools**
- fire sprinkler technology**



Fire Protection Research Foundation

- ◆ **some recent FPRF-sponsored projects**
 - **Hazards of Flammable Liquids in IBCs in Operating Areas**
 - **Fire Detection in Warehouse Facilities**
 - **Hazard Assessment of Fire Service Training**



Fire Protection Research Foundation

- ◆ **independent review of UL project:
“Validation of Extinguishing Agent Test
Methods for Use with EtOH Mid-Blends”**
 - **focus on EtOH concentrations > 15%**
 - **validate heptane as a representative test fuel for
determining efficacy of fire suppression agents
on mid-blend gasoline/ethanol fuels**



Fire Protection Research Foundation

- ◆ **independent review of UL project:
“Validation of Extinguishing Agent Test
Methods for Use with EtOH Mid-Blends”**
 - **agreed-on scale of test pool fire (2.6 to 4.6 m²)**
 - **existing test data being collected**
 - **test plan under development**



Applicable Codes

- ◆ **NFPA 30, Flammable and Combustible Liquids Code**
- ◆ **NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages**



NFPA 30

- ◆ **proper classification of liquids**
- ◆ **fire hazard analysis**
- ◆ **installation of ASTs and USTs**
- ◆ **installation of piping systems**



NFPA 30A

- ◆ **proper siting of ASTs**
- ◆ **piping systems**
- ◆ **leak detection in the piping system**
- ◆ **safety of the fuel dispensing system**
- ◆ **vapor recovery systems**
- ◆ **area classification around dispensers**
- ◆ **safe operating procedures**

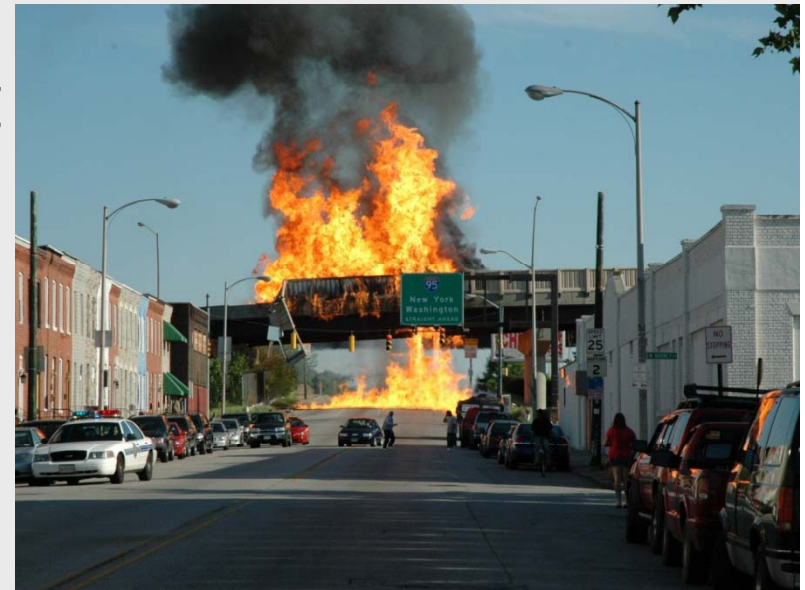


Potential Areas of Concern

- ◆ **existing infrastructure**
 - **compatibility of fuels with polymeric & elastomeric components of the fuel delivery & transfer system**
 - **corrosion of fuel storage system**
- ◆ **inadvertent mixing of fuels**
- ◆ **fire suppression**

EtOH ERC

- ◆ **formed in 2006**
 - **capability of emergency responders**
 - **multiple tank incidents**
 - **fire suppression agents**
 - **fire suppression tactics**
 - **need for actual field testing**
 - **need for training**



EtOH ERC

◆ **full scale testing February 2007**

◆ **foams:**

- **Class A foam**
- **Emulsifying Agent**
- **AFFF**
- **AR-AFFF**
- **Fluoroprotein**
- **AR-FFFP**



EtOH ERC

◆ fuels:

- **neat denatured ethanol (95/5)**
- **motor gasoline w/ 10% ethanol**

◆ test protocols

- **fixed discharge to vertical surface**
- **application directly to fuel surface**
- **sprinkler application**



EtOH ERC

◆ overview of findings

- only AR-AFFF & AR-FFFP can be used on neat denatured ethanol
 - foams must be applied gently & indirectly****
- E10 can be attacked w/ AFFF or AR-AFFF
 - might need increased application rates to prevent burnback****
- AR-AFFF only agent successful in all tests**



Future Needs

- ◆ **it appears the question of the appropriate agent is settled**
- ◆ **need for research on appropriate application rates**
- ◆ **need for similar study of biodiesel?**

Contact Information

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