

# New Hybrid Surfactants for Water-Based Firefighting Foams as an Alternative to AFFFs

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**Objective:** Develop new aqueous fire-fighting foam formulations that are less toxic and have a reduced environmental impact than current AFFFs by reducing or eliminating the use of fluorosurfactants.

**Approach:** Synthesize hybrid surface-active agents and test them as foam stabilizers in fire-fighting foam concentrates. TDA's hybrid surface-active agents in combination with other surfactants could replace, wholly or in part, current fluorosurfactants in AFFFs.

## Ongoing Projects:

**EPA:** Development of fluorine-free aqueous fire-fighting foams for use with aspirating nozzles

**ONR:** Development of low-fluorine aqueous fire-fighting foams for use with non-aspirating nozzles

**Contact:** Dr. Silvia Luebben, [silvia@tda.com](mailto:silvia@tda.com), (303) 940-2317

# Foam Generating Devices at TDA



- Lab scale device: 200 mL of solution
- Uses compressed air
- Makes reproducible foams
- Foam not representative of what obtained with field fire-fighting equipment



- Larger scale device: 5 gallons of solution
- No compressed air
- MIL-F-24385F approved nozzle, 2 GPM
- Foam representative of what obtained with field fire-fighting equipment
- Can be used for UL162

# Fire Test of TDA's Formulation According to UL162

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