



Bulletin #54, Aqueous Film-Forming Foam (AFFF), the former “Gold Standard,” April 8, 2022

“The delay in taking action appears to have been caused by the combination of a dysfunctional regulatory system, a dispirited federal agency, and the ability of manufacturers to delay restrictions on the use of hazardous products.”¹

Negatives of AFFF

First patent in the early 1960's²
AFFF “...created for shipboard testing³
Has not kept pace with changing of aviation fuels
Has not kept pace with biofuels, i.e., E10, E15
Has not kept pace with aircraft composite materials
Persistent, Bioaccumulative, Toxic⁴
Fish kill^{5 6}
Animal and human contamination⁶
C6 should be treated as C8⁷
“Important to keep full tanks. Foam concentrate sloshing around will turn concentrate into a froth. The greater the air space the worse it gets.”⁸
“AR-AFFF concentrate may take weeks to calm down, if at all. This condition can cause VERY lean proportioning.”⁹
AFFF blankets do not last as long as an F3 foam. Fluorine-free foams have a longer blanket time length and thus would need to be re-applied less frequently.¹⁰
AFFF is corrosive¹¹
AFFF gels
“Pressure fed fuel fires and 3 dimensional fuel fires are not able to be fully extinguish with AFFF alone - - firefighters must augment the tactic by introducing dry chemical into the mixture to fully extinguish these types of fires,” i.e., Purple K dry compound introduced into the water/foam stream from a fog nozzle has proven to aid in the extinguishment of these types of fires”¹²
Does not work well on 3D fires; “is not effective on hydrocarbon fuels in motion (i.e., three dimensional fires)...”¹³
“Not good on running fuel fires”¹⁴

Positive of AFFF

AFFF works well on pooled fuel fires. “Best on static fires that are contained in some manner.”¹⁴



FDSA Bulletins are posted at the Fire Department Safety Officers Association (FDSOA) website under Safety Resources: <https://fdsoa.org/Foam-Exposure-Info>

Citizens for Safe Water Around Badger (CSWAB) is now posting FDSA Bulletins under their PFAS / Library, Firefighters & First Responders (inc military): <https://cswab.org/pfas/pfas-library/>

- 1 ACS Publications, Environmental Science & Technology, Fool Me Once, David Sedlak, Editor-in-Chief, July 7, 2016, <https://pubs.acs.org/doi/pdf/10.1021/acs.est.6b03367>
- 2 Orion, Fluorinated Fire Fighting Foams History, accessed Oct 25, 2021, <https://www.orion-fire.com/technical/aff-history/>
- 3 EWG, News & Insights, It's Time To Switch to PFAS-Free Firefighting Foams, April 22, 2020, Fire Chief Randy Krause, Congressional Testimony video, <https://www.ewg.org/news-insights/news/its-time-switch-pfas-free-firefighting-foams>
- 4 Jensen Hughes, A Historical Review of Fluorinated Foam Firefighting Agents, Performance Requirements/Environmental Safeguards Review, CMDR (ret) John P. Farley, Naval Research Laboratory and Joseph L. Scheffey, P.E., Fire Protection Engineer, Jensen Hughes, 21st American Chemical Society National Meeting and Exposition, March 2016, San Diego, CA, <https://www.kappetijn.eu/wp-content/uploads/2019/05/Presentatie-HUGHES-Review-of-AFFF-Requirements-2016-1.pdf>
- 5 Environmental Aspects of AFFF and AR-AFFF, Written on Behalf of Ansul Incorporated by Dick Ottman, White Paper 1017, <https://www.ansul.com/en/us/DocMedia/F-2003115.pdf>
- 6 Environmental Issues Associated With Defence Use of Aqueous Film Forming Foam (AFFF), Sonia Colville and Nicole McCarron, May 2003, <https://www.kappetijn.eu/wp-content/uploads/2019/05/Environmental-issues-AFFF-defence-mei-2003.pdf>
- 7 Petrochemical Industry White Paper, Firefighting Foam Transition Guidance, October 2020, does not wish to be directly cited
- 8 "AFFF Fluorine Facts, Jim Cottrell, New England Fire Mechanics & Service Tech. Assn. Annual Luncheon Presentation 2013, <http://www.combatsupportproducts.com/ewExternalFiles/AFFF%20Fluorine%20Facts%20Handout.pdf>
- 9 ibid.
- 10 Industrial Fire World, Sweet Smell of Success, Anton Riecher, Winter 2014, <https://www.solbergfoam.com/getattachment/8bf831ab-f717-4b82-bbd0-2e2cb14c34ff/Sweet-Smell-of-Success.aspx>
- 11 Answers, Is Firefighting Foam Corrosive? Accessed March 10, 2022, https://www.answers.com/Q/Is_fire_extinguishing_foam_corrosive
- 12 Personal correspondence with Fire Chief Randy Krause, Seattle-Tacoma Airport, March 11, 2022
- 13 US Department of Transportation, Commodity Preparedness and Incident Management Reference Sheet, Petroleum Crude Oil, 09/2014, https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/Petroleum_Crude_Oil_Reference_Sheet.pdf
- 14 ibid.

Foam Exposure Committee

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