



SOLBERG

Revolutionizing Firefighting Foam Technologies

*Firefighting Foam Advancement
The Next Generation*

*Mark Pillow
AIFEMA – Calgary, AB*





Foam Concentrates
Foam Hardware



Portable Extinguishers
Pre-engineered Systems



Engineered Systems
Detection & Control



The Amerex Group™
AMEREX • SOLBERG • JANUS
Moving Industries Forward by Redefining Fire Suppression

Headquarters & Americas Facility



Main Office / Manufacturing / Warehouse
USGBC LEED Certified Facility
16,650 ft² (1547 m²)



Fire Test Laboratory
State of the Art
Environmental Controlled
4100 ft² (381 m²) – 64' high (20 m)
Observation Viewing Room

Fire Foam Legacy

- **Fluorosurfactants have been used in foam since the 1960's**
- **Fluorosurfactants are the key material ingredient**
 - Increase extinguishment speed
 - Provides thin film to suppress vapors
 - Adds oleophobic (fuel shedding) properties to the foam
- **Standard for firefighting foam for over 50 years**



AFFF – Environmental Legacy

- **Fluorosurfactants are “the” active ingredient in AFFF’s**
 - **PFOS** (perfluorooctyl sulfonate) Product formed in the manufacture of fluorochemicals by the electrofluorination process or through degradation of chemicals produced through the electrofluorination process.
 - PFOS is considered Persistent, Bio-accumulative, & Toxic
 - **PFOA** – (Perfluorooctanoic acid) Chemical used in the production of fluoropolymers . Also found as a byproduct in some fluorosurfactants and as a byproduct of decomposition of some C₈ and higher fluorochemicals.
 - Commonly referred to as C₈ Chemistry
 - PFOA is considered Persistent, Bio-accumulative, & Toxic
 - **Used as a surface active agent and in a variety of products such as firefighting foam, coating additives and cleaning products.**

AFFF – Environmental Legacy Manufacturing Process



- **Electrochemical Fluorination**

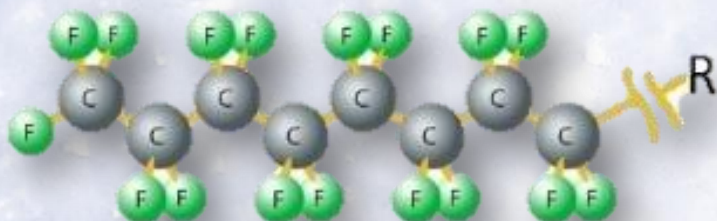
- This is the process that forms PFOS
- Used by 3M Corporation to make “Lightwater” brand AFFF – phased out in 2002

- **Telomerization**

- This is the process used by most other foam manufacturers throughout the world
- Does not produce PFOS
- Has been used since 1970’s

Environmental Hazard

- **C₈, C₈ and higher mixed homologue foam concentrates containing or potentially degrading into PFOS or PFOA**



C₈ Fluorocarbon

Refers to distribution of perfluorinated carbon chain lengths of C₈ or greater



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Special Report: Toxic Firefighting Foam Has Contaminated U.S. Drinking Water

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Toxic firefighting foam leading to water contamination?

Posted: May 03, 2016 3:46 PM CDT
 Updated: May 17, 2016 3:46 PM CDT

By Michelle Madaras [CONNECT](#)

Recommend 274 G f t e + 21

Most states do bare minimum on fire-fighting contamination

By JENNIFER McDERMOTT Apr. 29, 2016 9:22 AM EDT

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The State

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NATIONAL APRIL 30, 2016 9:52 PM

Most states don't track use of toxic firefighting foam

HIGHLIGHTS

PFCs in the foam have been linked to prostate, kidney and testicular cancer and other illnesses

PFCs are in many household products and are used to manufacture Teflon

South Carolina is beginning search of records to determine extent of foam's use in the state

NCR

Improve your Sporting Goods

Bay

linked to Firefighting Foam Found in Bay Area

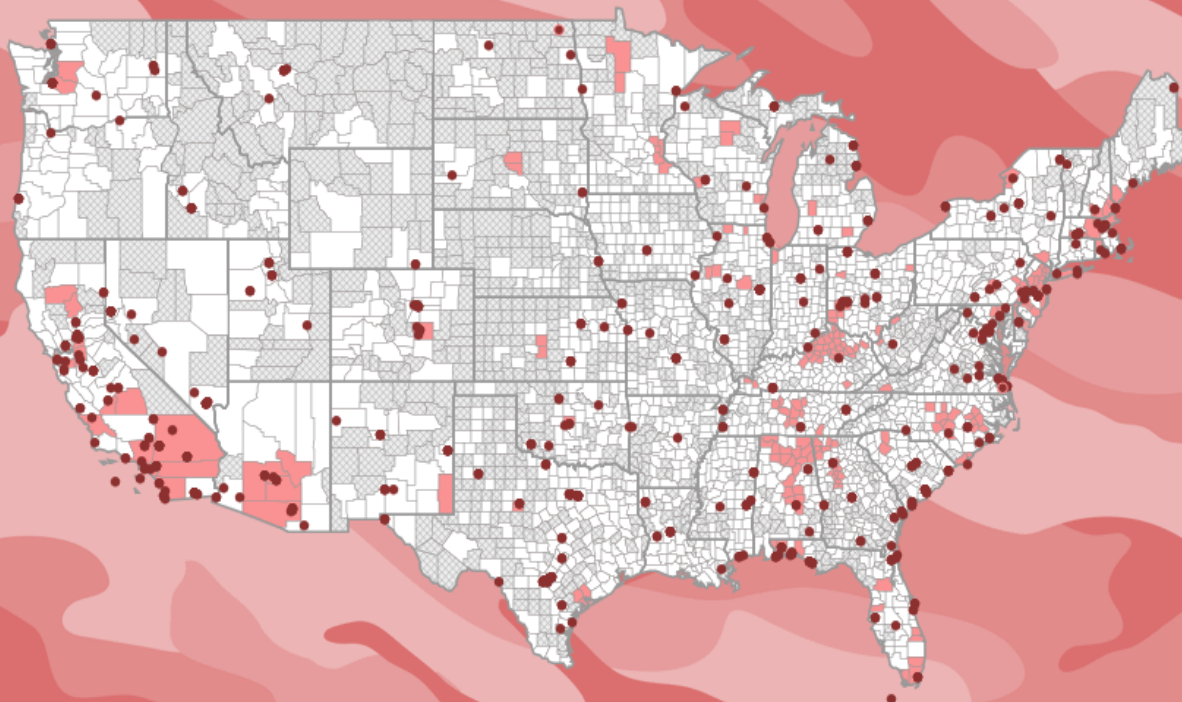
ation's drinking water for potentially harmful contaminants that have been described as

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HONDA

Military Sites Under Review

US Military is checking military sites throughout the US for possible ground water contamination due to PFOS and PFOA contamination



Source: Dec. 2015 - *The Intercept*, EPA and Department of Defense.

“Under the resolution, the Pentagon must give Congress a list of affected sites within 120 days, and include its plans for telling communities about the contamination and when it was detected.”

The Vehicle for Change

USEPA 2010 / 2015 Stewardship Program PFOA



2002
3M Exits Market PFOA



2010
European Union Bans PFOA



2013
Canada Bans PFOA



2010/2015
USEPA Stewardship Program PFOA

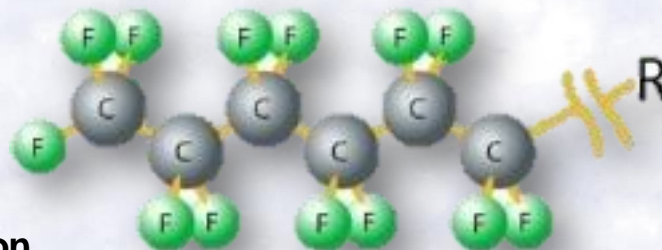


Environmental
Persistence

Environmental Solution

Foam Formulated with $\leq C_6$ fluorosurfactants

- *Foam manufacturers have transitioned or are in the process of transitioning to the use of only short-chain (C_6) fluorosurfactants in their fluorinated foam products*
- *NO PFOA/PFOS*
- *Meets EPA 2010/2015 Stewardship program goals*
- *Solberg AFFF has same application rates as other C_8 formulated products*
- *Manufacture's products, application rates, and approvals should be verified*

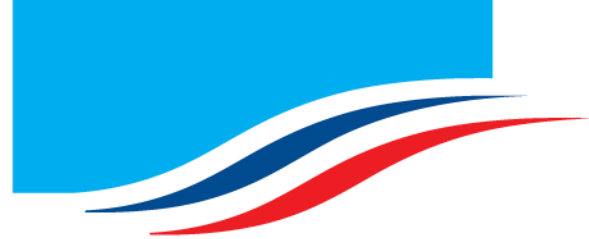


C₆ Fluorocarbon

Foam Concentrate Offering

- **Class “B” / AFFF**
 - Hydrocarbon Fuels
 - 1%, 3%, 6%
- **Class “B” / AR-AFFF**
 - Hydrocarbon & Polar Solvent Fuels
 - 1x3% ATC
 - 3x3% ATC
 - 3x6% ATC





SOLBERG

Solberg is a global company that is a one-stop resource for firefighting foam concentrates and custom-designed foam suppression systems hardware, offering both traditional and innovative firefighting foam technology. www.solbergfoam.com

SOLBERGFOAM.COM

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