True Innovation in the Firefighting Foam Industry

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As everyone associated with the firefighting foam industry can attest to, the firefighting foam industry has been undergoing significant changes since 2001, when 3M exited the foam business. Almost three years ago to this day, Amerex and Solberg joined forces to take the industry in a new direction.

While the foam industry is changing from long to short chain surfactants in an effort to address the Persistence, Bioaccumulation, and Toxicity (PBT) issues associated with this older type of foam chemistry, a change that Solberg completed three years ago, Solberg decided that the best way to address ongoing environmental and PBT issues was to engineer these problems completely out of the product.

So while industry manufacturers attempt to replace their current surfactants, Solberg has continued to introduce new fluorine free foam concentrates, and will continue to do so in the future. The response from some of the manufacturers and material suppliers to the industry has been one to attack the performance of the products.

In May 2012 a study was conducted titled "Fluorine Free Foam (F3) Fire Tests." In this evaluation, fluorine free foams such as those manufactured by Solberg were claimed to have been tested according to ICAO and EN fire test requirements and the test results used as a basis to state that foams supposedly failed the fire tests.

On the surface, these test results sound significant. How can a foam concentrate that carries all current test certificates for EN and ICAO approvals not pass this supposed independent test program? The answers are quite simple. The report describes how the pre-mix foam solutions were prepared. And to quote the report "Foam concentrate was weighed using electronic scales to ensure accurate proportioning – *no account of specific gravity was taken.*" In the case of the Solberg 6% fluorine free concentrate, and adjusting for specific gravity, the test used a foam premix of 5.5%, rather than the normal 6%. The testing was also done with field modified test nozzles that are not recognized by any fire test standard or approval body.

Over the last few, short years, the industry has radically changed and will continue to change, as all fluorinated foams are re-formulated to match the performance of the longer chain surfactants using the new short chain chemistry. I am not aware of any debate on this subject; the foam industry is changing formulations and re-testing and listing these revised formulations based on the

Automatic Sprinkler Test, Solberg RE-HEALING RF3, 3% Foam, Standard Upright Sprinklers

change to new chemistry. Solberg did this, and the others have either done this as well or are in the process of changing.

At the same time, the fire performance of fluorine free foam concentrates is improving. Solberg RE-HEALING™ Foam (RF) is approved to the newest version of ICAO Level B, with another product approved to the newest level C. The foam solution application rate for the Level C fire test is in line with the US Military specification.

Both Underwriters Laboratories and Factory Mutual have similar foam-water sprinkler test protocols, which in both cases is the most stringent foam-water sprinkler test in the World. Unlike other protocols, these two approval agencies apply foam solution from four sprinklers for 5 minutes, and assuming extinguishment, apply water only for an additional 5 minutes. After an additional 10 minute waiting period, torch tests and burn back testing is performed. Any exposed fuel during this process constitutes failure, and only foams that can produce a high quality stable foam blanket will pass this test.

For the UL listings, and the recently completed Factory Mutual approvals, the SOLBERG RF concentrates are listed and approved at exactly the same sprinkler application rates and minimum pressures as AFFF, using standard non-air aspirated sprinklers, both upright and pendent, with K-Factors ranging from 5.6 to 8.0 to 11.2. SOLBERG RF is also listed and approved with standard foam chambers, foam makers, standard and wide range proportioners, and all sizes of bladder tanks.

Other firsts for Solberg include the World's only Foam Environmental Warranty and the World's only Foam System Upgrade Program. It's one thing to tout environmental responsibility by stating that C-6 surfactant compliance will be achieved as a solution to this problem, but it's quite another to offer an unconditional 20 year Environmental Warranty on your products, or system upgrade programs that allow the user to upgrade to fluorine free foam while maintaining Listings and Approvals. We would encourage the remainder of the foam industry to follow suit and remove the environmental uncertainty currently associated with our industry.

Another point of debate from the fluorinated foam industry is that only fluorinated foams can extinguish a large tank fire. Although this has been repeatedly shown to be false by our emergency response partners, we elected to conduct a large tank demonstration at the BEST complex in Beaumont, Texas, using the same tank, fuel, and non-air aspirating nozzles, with foam application rates as used by other foam suppliers for their demonstrations of their fluorinated foams.

As with the other fire tests and demonstrations, no discernable difference in fire performance is seen.

In summary, how is SOLBERG RE-HEALING Foam the same as AFFF?

- 100% Synthetic Foam Concentrate
- Long Shelf Life – 20 Years or more
- UL Listed and FM Approved
  - Exactly the Same Application Rates – per Certification Standards
  - Listed and Approved With Standard Sprinklers
  - Foam Makers, Foam Chambers, Proportioners, Bladder Tanks
- Does Not Require Special Discharge Devices
- High Heat Resistance
- Flows Freely Over Flammable Liquids

And how is it different?

- An unconditional 20-Year Environmental Warranty
- Fully Backward Compatible with existing foam-water sprinkler systems
- A System Upgrade Program to change to Solberg RF Foam without losing UL and FM approvals
- Full biodegradability
- No PBT chemicals

The foam industry is undergoing significant change and the chemistry of all foams, fluorinated or not, is changing to comply with upcoming environmental regulations and ongoing PBT concerns. Equal performance to AFFF has been achieved with Solberg fluorine free foam concentrate. IFF

Large Scale Fire Demonstration, BEST Complex, Beaumont, Texas

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For more information, go to www.solbergfoam.com