

Our July Newsletter produced a lot of useful feedback and we need an update. Our apologies if this is not relevant to you.

The new environment policies on foam concentrates represent a huge challenge for fire protection professionals and companies as well as for end users. It is not as simple as it has been made out to adopt fluorine free foams. I believe we need to move to fluorine free foams, but we also need to get the fire protection engineering right too.

### TOPA Testing

Our goal in the July newsletter was to start discussions on the changeover to fluorine free foams, and in particular how the TOPA testing may not be as reliable as people may think. You might have noticed the disclaimer at the bottom of the last Newsletter, we had serious concerns about the TOPA testing but despite questioning the laboratory and the tests being repeated we couldn't resolve our concerns. The Newsletter fixed that by opening up communications with Nigel Holmes of the Queensland EHP, whereby he pointed out that all laboratories were incorrectly doing the TOPA test and the results are not valid.

For anyone who has had their foam samples tested, the results are incorrect. We will need to wait on the laboratories to sort this problem out before we can get valid test data.

### Foam System Design Standards

In the last Newsletter I pointed out that no large scale fire testing has been carried out on F3 foams that would enable us to determine the application rates for foam system design for many applications. However, I didn't explain the implications of this.

Design standards such as NFPA 11, NFPA 409, AS 1940 and others use larger scale fire test data to determine the application rates for foam system design and then incorporate them in the design standards.

NFPA 16 and AS 2118.3 would appear to be exceptions as they allow a fluorine free foam for deluge systems, provided it is listed for the purpose. There are actual tests for this application in UL 162, and therefor good reasons why these standards are different.



We do not have enough information to set the design rules for F3 foams for a large number of applications, so contrary to some claims, F3 foams are not ready for use in many fire protection applications.

This is an unpleasant reality for Queensland (and probably soon South Australian) fire protection engineers. Without knowing the design rules such as application rates, how can they design and install foams systems based on F3 foams to satisfy the environmental regulations?

Queensland regulators seem to have formed the opinion that F3 foams were available for most applications and this is clearly not the case. Unless there are design standards for F3 foam systems they cannot be considered ready for use.

I looked at the proposed regulations for South Australia last week. If they are implemented no fluorine containing fire fighting foam could be used in South Australia, which will leave many flammable liquid risks unprotected or improperly protected.

Fire protection engineers and companies might need to consider their liability exposure if they design and certify F3 foam systems without standards that allow the use of F3 foams

Between the TOPA testing issue and the lack of F3 system design standards people might be forgiven for wondering what is going on.



Any questions about this email or other Orion products and services?

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### Fluorine Free Foam Testing

There is some movement around the world on F3 foam testing but I would think we are a year or two (at best) away from having adequate test data to enable the writing of foam system design standards and the standards writing process could take another year. The LASTFIRE group are in the process of conducting some tests including some 11 meter diameter tank fire tests scheduled for October. When the results will be published is not yet known.

Historically it has been normal to use a minimum of two independent sets of fire test data before a new technology is adopted. When the use of AFFF through non-aspirated nozzles was adopted there were at least four publications on the use before non-aspirated foam use became widespread (see references here <http://www.orion-fire.com/technical/fluorine-free-and-non-aspirated-applications/>).

Over the weekend JOIFF released the latest addition of Catalyst which contains a brief article on F3 foams (<http://joiff.com/catalystdir/>). F3 foams are not as consistent across fuels as AFFF's which will make fire testing and writing design standards more challenging. We may need to test products on multiple fuels for listing purposes. There are also much larger performance differences between F3 products which will also add to the challenge. This is seen in the small scale testing data and, I am informed, is now being seen in larger scale tests as well. F3 foams should probably not be considered a single technology and this may need to be incorporated into the standards somehow.

### Foam Technology Development

The process for introducing a new foam technology has historically been:-

1. Develop technology,
2. Large scale testing,
3. Write design standards,
4. Product certification,
5. Introduce to the market.

F3 foam companies have tried to jump from Step 1 to Steps 4 & 5 and missed two fundamental steps (with the exception of foam deluge systems where steps 2 & 3 are already in place).

### More Information

I am not planning any more Newsletters on this issue for a while. We will post more information on our web site as it becomes available:

[http://www.orion-fire.com/technical\\_category/fluorine-free/](http://www.orion-fire.com/technical_category/fluorine-free/)

We have a BLOG page (moderated) where we would welcome people to ask questions and post additional information.

<http://www.orion-fire.com/fluorine-foam-system-discussion/>



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Any questions about this email or other Orion products and services?

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