eNewsletter

May 2019

Fire Engineering Pty Limited

Please share our newsletters with your colleagues and we welcome any feedback to news@orion-fire.com.au.

April Newsletter Update

Firstly, some follow up from last our newsletter. Currently the TOP Assay is the common PFAS test and as mentioned in our April Newsletter, it is not sensitive enough to determine whether F3 foam concentrates meet the Queensland PFAS requirements. Due to the high concentration of various chemicals in foam concentrates, testing for PFAS at the around 1µg/kg level is not available. A PFAS assay (not TOP) can test down to 100µg/kg. TOP Assay is best for testing C6 compliance, not PFAS levels. In the meantime, you can't be certain your F3 foam system is fluorine free enough in Queensland.

We have been reporting for two years that the TOP Assay under reports the PFAS levels in fluorosurfactant foams. Independent research now indicates that the current TOP Assay under reports PFAS levels by around 50% using the current best practice, while early attempts at TOP Assay were under reporting by 90% or more.

A PFAS or TOP assay for F3 foams should report no measurable PFAS (below detectable the limit).

We sighted a report stating that the PFAS content of a fire fighting foam was 268mg/kg. This must have been from a very early report or is a mistake as, with the exception of Fluoroprotein foam (where I have no data), the minimum PFAS level reported by TOP Assay for any reasonable AFFF or FFFP product should be greater than 2,500mg/kg, and is commonly greater than 3,000 mg/kg, and actual PFAS content is about double the TOP Assay reported level

Here are some interesting results from recent site visits. A bladder tank system where the bladder was reportedly changed before refilling with F3 foam - testing of the foam inside found 0.5 mg/kg of PFAS by TOP Assay, it is possible that the bladder wasn't actually changed. For a foam sprinkler system - the ranges were supposed to be flushed but 80mg/kg of PFAS was found by TOP Assay, probably due to not actually being flushed. This is the expected level for a 3% mix of fluorosurfactant foam.

Orion has decades of experience manufacturing and testing foam systems. Talking to us first can avoid expensive mistakes.

Aspirated foam

Orion is a strong supporter of moving to F3 foams in a responsible way. We have serious reservations about the capability of current fluorine free foams in any application that involves deep fuel fires, with the exception of foam sprinklers. That still leaves a number of areas where people can use F3 foams effectively right now.

The test data suggests that F3 foams perform better when aspirated and Orion has long been a manufacturer of aspirated nozzles. We have been busy testing our equipment with a range of F3 foams. We now know that we can make our nozzles proportion accurately with any F3 foam currently on the market. Some nozzles required substantial modification to work with the higher viscosity F3 foams.

Hose reel foam nozzles.

The Orion F-50 hose reel nozzle has long been the best performing foam nozzle of its size. It has now been tested with many F3 foams and is available in models for all currently available F3 foams.

Handline foam nozzles.

Orion FF-230 and FF-450 nozzles, available in self-inducting versions or with matching line proportioners, are available in versions to suit all available F3 foams. They produce well mixed foam with good expansion that is well suited for use with F3 foams and they induct foam accurately.

Aspirated monitor nozzles.

Orion manufactures aspirated monitor nozzles and there is a resurgence in popularity after many years where non-aspirated nozzles have dominated foam application.

Foam proportioners.
Orion has been busy manufacturing foam proportioners for various F3 foams, not surprisingly quite a few have been required for systems where a 'drop in replacement' foam was used - and then proportioning problems were found.

It is relatively easy to make in-line inductors for any F3 product. Balanced pressure proportioners are more challenging and for very high viscosity foam concentrates it is sometimes impossible to make these systems work (see our March Newsletter). There are also potential problems with viscosity variation between manufacturing batches in very high viscosity products making proportioning results inconsistent.

NEXT Month. The next Newsletter will have details of our new hazardous area remote controlled aspirated foam nozzles.

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