

From: ACO M REED, Defence Fire Services



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Your Reference:

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Date: 20th November 2000

Dear Chris

'FIRESTOPPER 40002' - ABFFC FIRE FIGHTING MEDIA

Further to my E-mail dated Thursday 2 November 2000, in response to yours from the previous day, my apologies for a less than perfect reply, due entirely to pressure of work during the remaining few hours left that day before going on vacation for two weeks.

Now, two weeks later and having had time to analyse your questions thoroughly, I feel that a fuller explanation of the product 'Firestopper 40002' would help you in finding the elusive alternative to fluorinated (AFFF) foam. No doubt, like you, I have also been researching the market for years in an attempt to find an alternative 'green' replacement for all current conventional foams, i.e., a fire-fighting agent that is not fluorinated and actually puts a fire out! Suffice it to say that after trialing almost 21 different (alternative) fire-fighting agents I accidentally came in contact with 'Firestopper' 3 years ago.

At that time 'Firestopper' was not commercially available anywhere. Nevertheless, Mr. Bedi and his UK Agents: Fire, Equipment and Consultants (FEC) Ltd invited me as the MOD authority on alternative fire-fighting agents to evaluate their product. This, incidentally, at a time when Firestopper was under the label of 'FS 1010', presented in a 9 litre (2 gallon) dual purpose A/B extinguisher. Moreover, the product being the only one of various alternatives I had so far evaluated that had passed the European/UK BSI: EN 3 (Parts 1-6) test accreditation. Therefore, my involvement in research and development of Firestopper, initially more out of curiosity than anything else, commenced.

First, having verified the manufacturers claims that (1010) could achieve an easy 27A and an incredible 144B rating with just one 9-litre A/B extinguisher. It was agreed between myself (on behalf of MOD), and FEC Ltd that research into the full potential of the product, both in fire extinguishers and as a bulk application should begin.

From this point on all trials were carried out at the MOD Defence Fire Services Central Training Establishment, Manston, Kent, under possibly the most stringent of all foam tests in existence, i.e., too Defence Standard (Def-Stan) Foam Test 42-40. However, with the Defence Performance Standard test (e.g., a "live" fire test being a pre-requisite, and part of Def Stan 42-40) and as tough as it gets regarding MOD testing protocols. It was perhaps no surprise that some initial teething problems were evident during early Test/evaluations. NB: This test is carried out in a 81 metre square fire pit which, depending on test, has between 670 Litres to 1200 Litres of Aviation fuel (Avtur) poured onto 100mm (4 inches) of water and ignited. A sixty-second pre-burn is given, with control; extinction and then post fire security (burnback) timed, with no-burnback permitted for at least 20 minutes over 25% of burn pit. Standard **foam** and **water** delivery nozzles used throughout.

For example, after extinguishing three sample fires (25 to 39 seconds with a mean average of 29 seconds), we could not at first achieve 20 minutes post fire extinction security. All of this being relevant as to how 'Firestopper' became the first foam alternative, which now out-performs AFFF, AFFFFP and FFFP, whilst not forgetting its capabilities on carbonaceous Class A (wood, tyres, paper etc.) fires as well.

Over the following 18 months of trials in the UK, plus fine-tuning at the Firestopper manufacturing plant in California, USA, 40002 ABFFC was born. The product, defined for testing purposes as a FIRE FIGHTING MEDIA (FFM), due to it not being a foam, and with no official standard at this time available to test against we had the dilemma of how to accredit it. Foams are tested under various Standards like ICAO. On the other hand some alternatives claim to have passed the NFPA Wetting Agent standard! This of course does not satisfy a 'foam' replacement test. Therefore, with nothing else available to me other than the MOD Def-Stan 42-40, Firestopper was subjected to this test and PASSED. The only concessions given in the test, because Firestopper is **not** a foam was to waiver the foam pick-up, and water drainage tests, everything else was exactly to the 42-40 tough test criteria. (Mr. Bedi holds copies of all test results, which you are welcome to see).

However, as the Def-Stan 42-40 test is not definitive enough for alternatives, I have been tasked, using Firestopper 40002 as the template, to write a test standard for future 'green' alternate foams (fireStopper will not be required to undergo further testing, having already passed the higher test). This is 90% complete and, when issued as Def-Stan 42-42, hopefully either in late December or early Jan/Feb 2001 it will be the definitive standard for all FFMs, and will not include wetting agents. I know the NFPA is eagerly awaiting publication which, incidentally, should be issued on the web as a Draft Standard prior to full issue soon.

The explanation as to where 40002 came from and where its going too has, out of necessity been a long one. Nevertheless, with its supercooling properties, rapid knockdown, being non-toxic, non-corrosive and with a superb post fire security. Which, to the best of my knowledge is the only proven non-fluorinated foam alternative fire-fighting agent on the market at this time and, who knows what other applications are in store for 40002? My next phase of research is on metal fires, having had some success on magnesium fires, and very successful results in Automatic Fire Suppression systems.

Perhaps we could meet in the not too distant future to discuss this truly amazing product, either in the USA or, better still. If you could arrange to visit the MOD trials and evaluation (fire) Central Training Centre at Manston, Kent at which time I could arrange to run some test fires for your own evaluation. What ever you decide I will do my best to support and assist you.

With Regards

A handwritten signature in black ink, appearing to read 'M Reed', with a long horizontal stroke extending to the right.

M REED
Assistant Chief Fire Officer - Fire Safety Policy

Information:

Mr. R Bedi - Firestopper Technologies Inc, USA
Lt Cdr A Roberts (RN) retired - FEC Ltd, UK