



Foam Testing Service Annual test programme

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Recommended annual test programme

Firefighting foam concentrates are the preferred extinguishing medium for many flammable liquid risks. It is vital the foam performs when called upon during any stage of its operational life, therefore it is vital that the foam is tested regularly.

Angus foam concentrates are developed and tested to ensure they have excellent storage characteristics but they can be subjected to harsh climatic conditions outside their intended design criteria or be accidentally spoiled due to contamination or by dilution with water. Annual testing is essential and is recommended by many international standards as extreme conditions can lead to premature degradation of the concentrate. Angus Fire's independent foam testing service includes a suite of tests and delivers a comprehensive, unbiased and reliable test result.



Specific Gravity (SG)

The SG of a foam concentrate is measured using a density bottle or hydrometer. The result depends on the temperature of the foam concentrate and is always carried out at 20°C. Significant variation indicates that evaporation or accidental dilution may have occurred.



pH

Foam concentrates should be as neutral as possible to prevent corrosion. The pH is a measure of the acidity or alkalinity of a foam concentrate on a scale of 1 to 14 where 7 is neutral. The pH of a foam concentrate is measured at 20°C.



Sediment

Sediment comprises of microscopic particles and is naturally present in certain foams at low levels. High levels may occur if a foam is contaminated or stored in extreme temperatures. Severe sediment may even affect a foam's firefighting performance.





Refractive Index

This test determines the accuracy of foam proportioning equipment by measuring the percentage of a foam concentrate within the solution supplied (pre-mix only). An out of spec result can highlight a problem or failure within the foam proportioning system.



Surface tension and interfacial tension

A dramatic change in a foam's ability to form a film can be an early indicator of a catastrophic failure. To determine the strength of film formation, if present, several readings of surface and interfacial tension are measured. The result confirms the difference between a Film Forming Fluoro-Protein (FFFP) and a standard Fluoro-Protein (FP) or between an Aqueous Film Forming Foam (AFFF) against a standard Synthetic or Fluorine Free (FF or F3) type foam concentrate.



Foam Properties

This test comprises of two parts; the expansion ratio and the drainage time. Foam expansion refers to the increase in volume of a foam solution when it is aerated. Good expansion is essential for producing an effective firefighting foam blanket. The properties of a foam blanket vary depending on the equipment used and the operating or climatic conditions. Specialised laboratory equipment complying with international standards is used to achieve repeatable and reliable results.

The drainage rate test is performed on the same sample as used to measure the expansion ratio. By taking a set volume of foam and timing how long it takes for 25% of the fluid to drain out of it, give us the ¼ drainage time. This provides an important indication of the foam's stability, and is also a reliable indicator of performance.

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Alcohol tolerance test

This test identifies Alcohol Resistant (AR) properties of a foam. A small sample is applied to an aggressive alcohol and exposed to a radiant heat source. The foam should resist not only the heat, but also the aggressive nature of the alcohol fuel.



Fuel tolerance test

A foam's ability to repel fuel is key to quickly extinguishing a fire and keeping it out. During this test, the foam solution is mechanically mixed with fuel to simulate forceful application during firefighting. If a foam combines with the fuel, the bubble mass will become flammable and lose its ability to successfully extinguish a fire. During the test Angus Fire applies an assessment criteria, which delivers the actual results.



Interpreting the results

Individual test results are recorded and included within the final report. A simplified summary is supplied for quick interpretation of the results:

-  **PASS** The sample has passed all the tests for the foam category and can be continued to be relied upon in an emergency.
-  **FAIL** One or more critical properties are not acceptable and immediate replacement is recommended.

Angus Fire's Foam Concentrate Evaluation Report will detail how a foam sample has performed throughout the test programme. This not only meets the requirement for annual testing, but also provides peace of mind for the emergency responders who rely on high performance foam.

Angus Fire is a global leader in firefighting technology. In more than 100 countries Angus Fire supplies fire safety products and services to customers operating in a wide range of industry sectors, to international airports, harbours, ports, to military bases, power stations, and of course to fire and rescue services. Angus is a global name with an impressive history of 200 years in the firefighting industry. It is this rich heritage and the expertise, which put Angus at the forefront of fire industry and makes the company the preferred partner by firefighters worldwide.

Angus Fire is committed to extensive research and development in manufacturing high performance firefighting foam concentrates and supports the industry with various complimentary services such as Emergency Foam Service, +44 (0) 15242 61166, Firefighting Foam School and the Foam Testing Service.

