Understanding High Expansion Foam

All firefighting foams work to suppress fires using the same concept, however, different types of foams have different properties that are designed for different applications in the field. Dyne technologies is able to test these different types of firefighting foam, including high expansion foam.

High expansion foams are unique as their expansion ratio is very high – over 200 times its original volume—meaning very little foam is needed to fill a large space. In comparison, low expansion expand differently; these foams are denser and have an expansion ratio less than 20 times its original volume. Because of this high expansion ratio and their light weight, high expansion foams are typically used in confined indoor spaces such as air craft hangars, ships, machinery spaces and mine shafts. According to NFPA, the development of high expansion foams was first introduced in Buxton, England through the Safety in Mines Research Establishment in response of developing a difficult solution of quickly extinguishing fires in coal mines in the 1950s. In the event of system activation, the entire volume of these spaces are quickly filled with expanded foam in a matter of minutes, eliminating oxygen and cooling the fire. The quick expansion of this foam in these high risk environments can stop major catastrophes, saving lives and property.

High expansion foam systems work by blowing foam solution against a net or screen, creating many large bubbles, allowing a blanket of foam to take up a large volume. High expansion foams have an environmental value as well. The environmental impact of the fluorocarbon surfactant used in some firefighting foams has been criticized in recent years. High expansion foams do not contain this surfactant and are overall low in toxicity.

Dyne Technologies is pleased to offer high expansion firefighting foam testing services. Both the physical properties and performance properties of a high expansion concentrate are tested according to NFPA and the recognized standards. High expansion foams are put through a high expansion generator in the laboratory to ensure these foams will perform as designed.

Ensure that you are using the resources available to you at Dyne Technologies. Our staff chemists are ready to answer questions that you may have regarding your test results. Call Dyne at (800) 632-2304 or email, lab@dyneusa.com, for assistance with understanding your test results.