Common Myth #5

Posted on March 1, 2013 by Amerex

I can use any foam extinguisher on any flammable liquid

Description

Yes and No. Amerex is one of the few manufacturers that makes foam fire extinguishers. We are the only one that makes several hand portable foam extinguishers and a foam wheeled unit. All flammable liquid fires are not alike; neither are all foams. The right foam must be used the right way in order to put out different flammable liquid fires. A foam extinguisher that does not state on the listing label that it is approved for use on polar solvents should not be selected to protect water miscible fuels or polar solvent/hydrocarbon mixtures.

Foam concentrates, such as the FFFP used in the Amerex Model 252, are designed for use on alcohol fires (including other polar solvents such as MEK, methanol and glycol), have an additive called a copolymer. When this type of foam makes contact with a polar solvent, a membrane is formed by the copolymer. You can see this membrane on the surface of the fuel. It looks almost like the skim you would see on milk after it has been heated. It is this membrane or skim that puts the fire out and secures the vapors.

In order to allow this membrane to form, you can't disturb the fuel surface when the foam is being applied. This means that you can't just stand back and "lob" the foam in to the middle of the fuel. Instead, the foam must be gently bounced off an object either in back or in front of the fuel and allowed to gently flow over the surface. The more gently the foam is applied, the more likely the membrane will form. As a "rule of thumb" figure that the surface area that may be extinguished with a foam extinguisher on a hydrocarbon fire will be about twice that of what may be extinguished with a polar solvent fire.

The foam will seem to just "disappear" when it hits the surface if the membrane isn't allowed to form. This is happening because the polar solvent is pulling the water out of the bubbles and breaking down the foam.

On more common hydrocarbon fires (such as gasoline, diesel and oil), Alcohol Type Foams work the same way as other foams. No membrane needs to be formed and the foam may be "lobbed" onto the surface. It is still a good idea to "bounce" the foam onto the surface if possible to form a more effective foam blanket. Disturbing the fuel surface is not as critical if only hydrocarbons are involved.

What do you do if both hydrocarbons and polar solvents are mixed together, such as most gasoline available today with 10% ethanol? If there is more than 10% polar solvent in the mixture, the fire should be treated as if it were all polar solvent.