

Fire Apparatus

The Reference Guide To Purchasing Fire Service Tools & Equipment

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Foam Needs To Be In Every Department's Operations

By Bill Ballantyne

If using Class A foam is not part of your standard operating guidelines, here's a strong case for you to move it to the top of your list.

To compete today businesses have to react quickly to change. The fire service is no different.

Within one week, a team of business consultants I was recently with revamped a company to reduce lead time from days to hours, reduce inventory by 90 percent, helped reduce defects and errors by 50 percent, boosted productivity by 50 percent, reduced floor space requirements 25 percent and improved customer service to 99 percent.

Businesses around the world are experiencing similar improvements through the process built on the Toyota Production Model called a Kaizen Event. The term means ongoing continuous improvement.

Part of the process of achieving such startling change is removing the limits on the current way we look at production, sales and service.

Can we achieve a similar magnitude of improvement in the

fire service? Absolutely!

For starters, let's look at how to reduce fire losses. Several years ago, the Los Angeles Fire Department conducted a series of burns in an instrumented building to compare the performance of water, Class A foam and Compressed Air Foam. These are often referred to as the Palmdale Tests.

Chart 1 summarizes the time to knockdown for the three extinguishing agents. The water attack required 50 seconds to achieve knockdown. The air-aspirated Class A attack required only half that time, providing a 50 percent improvement. The CAFS attack took just 11 seconds. That is a 78 percent improvement over the water attack.

Chart 2 shows the total gallons required for knockdown with all three extinguishing approaches. Here we see a similar pattern. Class A foam provided a 40 percent improvement over plain water while CAFS showed a 79 percent improvement.

Class A fuels account for over 97 percent of the fires encountered in the United States. Based on the Palmdale data, one could make the argument

that from the time water starts flowing until knockdown, losses could be reduced by 40 percent with Class A foam and by 78 percent with CAFS.

This represents a significant property loss reduction resulting from the use of Class A foam and

CAFS. But perhaps the greatest benefit, no doubt more difficult to measure, is the improvement in firefighter safety.

Firefighters are exposed to dangerous operating conditions for significantly less time while at a safer distance. This results

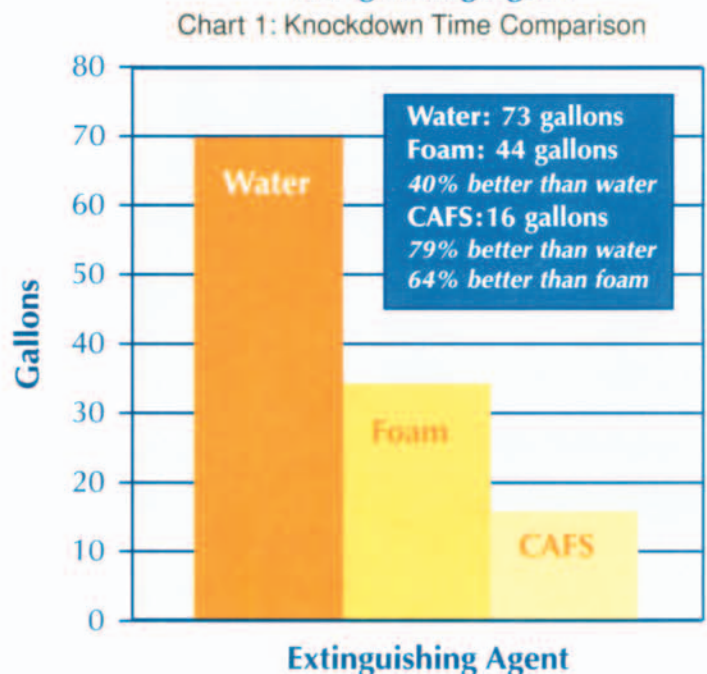
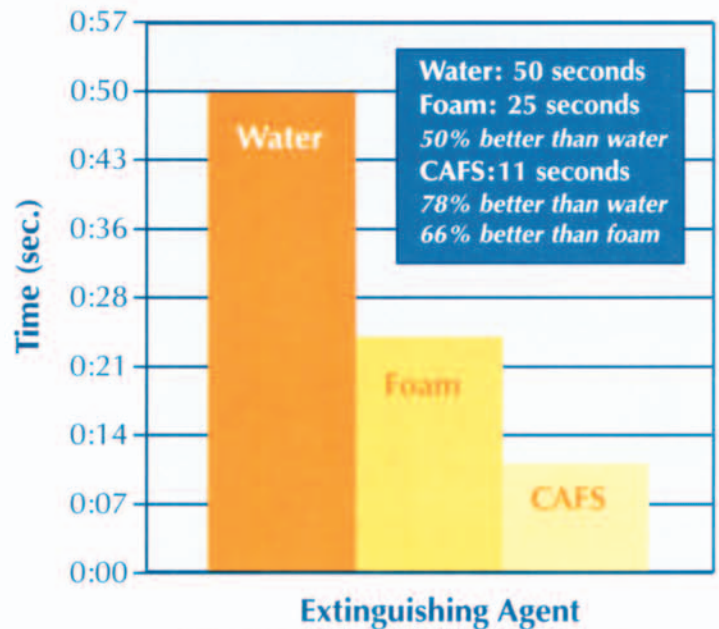


Chart 2: Gallons Required To Achieve Knockdown

in far less stress, with fewer burns and injuries.

Overhaul and clean-up operations are substantially reduced. Foam penetrates and wets fuel much better than plain water. This means fewer rekindles, reducing the need for engine companies to return to the scene. Because the fire, water and smoke damage is minimized, more evidence is preserved for arson investigation, greatly improving chances for detection, apprehension and conviction.

ISO Credits

If the reasons discussed are not compelling enough for you to implement foam on your department, the Insurance Services Office (ISO) now gives you further incentive with credits for Class A foam impacting on local insurance rates.

For those outside of Texas, ISO will give credit for a built-in foam proportioning system or CAF System. For foam supply they will give credit for up to 25 gallons of Class A foam.

Keep in mind ISO does not recognize wetting agents, emulsifiers or surfactants. So make sure the size of your foam tank is at least 25 gallons and you have an approved proportioner. For full details, visit the ISO website at www.isomitigation.com

In Texas, ISO credit is now given for Compressed Air Foam Systems when used in the extinguishing of all structure fires. The standard states:

- The engine must be a NFPA 1901 Class A pumper
- Minimum 500 gpm pump

- Minimum 120 scfm air compressor, permanently mounted
- Minimum 2.5 gpm Class A foam concentrate pump
- Minimum 20-gallon foam tank for Class A foam

At least one engine equipped with a CAFS unit must respond on all structure fires on first alarm assignment

You can visit their website at www.tdi.state.us/general/pdf/mtxaddendum.pdf

Assuming you are now convinced to implement Class A foam or CAFS, here are a few quick suggestions aimed to help you get started.

First, there are new NFPA 1901 Standards in effect as of 2003. Get a copy and familiarize yourself with the standards that apply to foam proportioners and CAFS. Remember, these are intended to be minimum standards. If you follow these standards when writing your specifications, they will help ensure you get a system that will work properly and meet your needs.

Class A Options

Operationally with Class A foam, you will want to be able to vary the quality of the foam solution from wet, to fluid, to dry. Wet foam, (0.2 percent) with small bubbles, will penetrate fuel and is ideal for overhaul operations.

Fluid foam, (0.5 percent), will give a medium bubble size, ideal for initial attack, while a dry foam, (1 percent) with large bubbles, will stick to surfaces and is ideal for exposure protection.

You will want a proportioning

system that will provide sufficient accuracy to enable you to obtain the foam quality you need for the given situation over the range of flows and pressures where you will operate.

If the proportioner you are looking at cannot produce the foam properties illustrated in the photos, you should keep looking for one that can.

Buy Quality Foam

Another important point: Many situations have occurred where a fire department could not get the solution to look like the wet, fluid and dry foam just discussed. What it usually goes back to is someone got a "really good deal" on foam concentrate.

Without exception, around the world, the price of foam concentrate is proportional to the level of active ingredients in the product. You get what you pay for. Buy only quality foam.

Even the good quality Class A foams are not that expensive. The flow and percentage rates they are used at are much lower than with the Class B concentrates used on petroleum fires. Besides, you don't pay for the concentrate, you can make the insurance company pay for it.

Makers of Class A foam proportioning systems and CAF Systems have made these units pretty easy to operate. The biggest hassle has been getting the foam into the tank.

Now that problem is solved for you as well. Automatic refill systems are now available from both Robwen and FoamPro



(above) Foam tank refill systems are available from FoamPro and Robwen. They were designed to eliminate climbing on top of the unit to refill the foam tank. The pump moves the fluid from the bucket to the tank at the flip of a switch.

which enable the user to refill the foam tank from the ground.

A foam refill system will eliminate injuries resulting from climbing on vehicles or lifting pails of concentrate to the personnel on top. Look for a system that will automatically shut off or signal the operator when the tank is full. This will avoid dangerous and costly spills associated with overfilling the tank.

Given what we know about foam, is there any other single initiative on your department's list that would have as significant an impact to your department and community as implementing Class A foam or CAFS? Probably not.

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Editor's Note:
Bill Ballantyne is Vice President of the FoamPro Division of Hypro Corporation, President of the Fire Apparatus Manufacturers' Association, (FAMA) and a principal member of the NFPA 1901 Committee.