

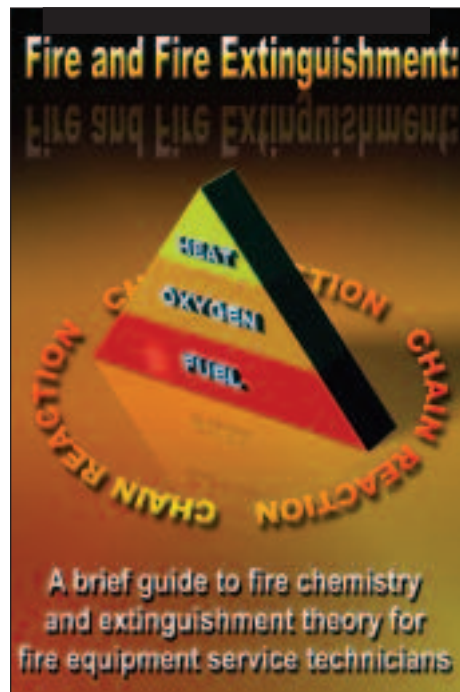
Fire and Fire Extinguishment: A New Primer on What You Need to Know Beyond the Codes

By Tamara Matthews

As anyone who has hired a new technician knows, good training information is hard to find in one place. The NFPA 10 is a great resource but it is hardly a how-to handbook. Even when new techs get the physical aspect of their job down and can replace a valve with their eyes closed, how much do they know about the applications of the device they are servicing? What do they know about the nature of fire, how the chemicals in different agents actually work, and the methods used to extinguish a fire?

Craig Voelkert thinks this is important information that every technician should know, and information that certification testing should include in exam questions. Unfortunately there is no one publication currently in existence that covers general fire chemistry knowledge that could reasonably be used as a study source for an exam. Knowing this, Voelkert was inspired to create his own publication. He wanted exam takers, and technicians in general, to have access to the theory behind extinguisher selection and the chemistry of fire in a simple, easy to use guide.

Voelkert is the right expert to write this kind of guide. He started out working for his father's fire equipment distributor business during summers in college and then alternated working for manufacturers and distributors until he landed at Amerex in 1994. He also taught at the University of Nevada, Reno, at their flammable liquid training school for close to 12 years and was the field instructor for the dry chemical division of Texas A&M's fire school. He is currently vice president of sales, special hazards, at Amerex. He conducts training seminars all over the world and serves on many NFPA committees.



Firewatch! talked with Voelkert about the publication he wrote, titled *Fire and Fire Extinguishment: A brief guide to fire chemistry and extinguishment theory for fire equipment service technicians*.

FW!: How did this publication come about?

CV: Larry Angle, Tim Krulan, and I served on the ICC exam development committee for pre-engineered systems developing test questions. We felt that there should be some base knowledge on the chemistry of fire; we felt that those were valid questions to include on the exam. Problem is, you need a reference document.

The NFPA *Fire Protection Handbook* is so voluminous and so expensive, we didn't feel that it was practical. If there were another single document with that information, that would be handy to have. Not

knowing of any such document that existed, I decided to put one together and submit that to the committee, although I couldn't get it done in time for it to be counted as a reference document. It's important to note that I think every company should have a copy of the handbook, but it's prohibitively expensive for each individual to have the handbook.

We felt that this is necessary and valuable information for technicians to have in making decisions and recommendations in the field, but you don't want to make it difficult for technicians to get that info. I wanted it in the public sector, free or with little charge and as available as possible, which is why I felt that NAFED would be an excellent resource to get it out there.

FW!: How did you research the guide? What resources did you use?

CV: It draws from the *Fire Protection Handbook*; it also draws from a lot of the work that was done a long time ago by companies that are now longer in existence. Also there was a Dr. John Riley who worked for Ansul and wrote a lot of papers for different associations on the chemistry of fire in the late 70s. There have been a lot of changes in the industry since then.

All the information in that guide is available through a number of different sources. The problem is that it is hard to find those sources, or find the information *in* the sources. All the information can be found in the NFPA *Fire Protection Handbook*, which covers everything you might want to know. It's an excellent reference but it would be difficult to get to just the basic chemistry of fire and the theory of extinguishment for different extinguishers. The

exercise here was to get that info which would be of most interest to the technician and make it easy to access.

FW!: How can more in-depth knowledge make a difference in how a technician performs his work? Do you believe that the information in this guide should be shared with the end user?

CV: A fire inspector would look to the technician to choose the proper agent for the hazard. If the tech doesn't understand basic chemistry of fire or extinguishment theory, they can't make an educated recommendation.

For example, with a flammable liquid fire, there are reasons why you would choose one specific agent over the other. If all you are dealing with is flammable liquids, in large quantity, and there is no concern about damaging electrical equipment, Purple K would be the best choice. If there is a small quantity of flammable liquid and electronic equipment is present, a clean agent may be the better choice.

You get a lot of questions from end users and from distributors that show they don't have enough knowledge. The training technicians get is on the physical aspect. That's extremely important, that's their main job, but I don't think they are always trained to see if the extinguisher is right for the situation. By knowing the theory of extinguishment, you know there are advantages as well as limitations with any specific extinguisher. What works well in one situation will not work well in another and may, in fact, create more problems than it would solve.

Fire protection has become more complicated over the years and more exotic materials are used on a regular basis. As an example, Class D materials such as titanium and magnesium are becoming more common. Our society is so litigious now, an extinguisher could put out a fire but if someone feels that the agent caused any damage or they perceive they have any health problems from the discharge of the agent, a loss could still occur.

You need to choose the right extinguisher depending on what the hazard and exposure might be. If you use water instead of an A:B:C dry chemical on a hazard that was strictly Class A in nature, you won't have as much of a problem with concerns over people breathing a "strange yellow chemical" and thinking there is a health hazard when there really isn't one. It comes down to educating customers about their hazards, possible incident situations, and how different extinguishers will work on a fire. Then customers will know what to expect. The object is to cause the least amount of damage in an incident while protecting life first and property second. ♦

To download a copy of Fire and Fire Extinguishment: A brief guide to fire chemistry and extinguishment theory for fire equipment service technicians, visit the Products & Services section of www.nafed.org. If you would prefer a hard copy, contact NAFED at 312-461-9600. There will be a nominal fee for printing and shipping the hard copy.