



UNDERSTANDING THE FR SCIENCE BEHIND YOUR SAFETY

Flame resistant (FR) clothing is like a car insurance policy. No one enjoys paying for insurance, but the point is that insurance should protect you in case something bad happens (i.e. a car wreck). FR clothing has a similar purpose – to protect you, as the last line of defense, against arc flash, flash fire and other accidental or unpredictable momentary thermal hazards. With insurance, you purchase the plan based on what you ultimately get out of it. It's the same with FRC — you get what you pay for.

As you read the title of this article, you might be wondering, “Why do I need to know about the science behind FR? Does it really matter?” When it comes to safety, decisions should be made on facts, not stories or marketing terms.

To start, we should break down what you're actually buying. While the FR garment is what you wear, the FR fabric your garment is made from is the single largest factor in determining your garment's protection level, comfort and overall value.

But, Are Standards Really Enough?

Nature provides very few FR fibers. Most flame resistant fibers in common use today for industrial protective apparel have been engineered by humans to be flame resistant. What is important is not how the engineering is accomplished, but that the engineering is accomplished to begin with. This engineering must be done correctly and consistently so that the garment remains flame resistant for its useful wear life. This is where the science of flame resistance impacts your protection.

Most workers and safety managers might look at flame resistant garments and not see a difference, “as long as it meets the standards.” But, are standards really enough? No, compliance alone does not necessarily provide adequate protection. When you take a closer look, you’ll find that large differences exist between

otherwise “compliant” fabrics. There have been too many failures, including FR durability, excessive shrinkage, poor comfort and others on which to base an important decision like your safety.

Let’s walk through a typical purchasing process for FR. A sales rep might come to your company, ask you about your hazards and show you garment options that would help protect your workers based on the standards they meet. Or, you may have inherited an FR clothing program from a prior safety or purchasing manager and simply choose to move forward with the existing program based on the fact that your employees generally seem happy with the program and there’s no financial reason for it to change. Plus, you’ve never had an accident, right?

Caution: What You Need to Know

In short, beware of simple answers. This includes basing a decision on words like “inherent,” “treated,” “88/12,” “certified” or other over-simplified terms. What does “treated” mean as applied to the FR clothing market? To many, it means a fabric with FR properties that are topical and/ or temporary. This may be true with some generic, unbranded “88/12 FR” and 100 percent cotton FR fabrics. However, when it comes to the fabric brands that have the largest share in this category, the engineering technology results in a fabric that is guaranteed to be flame resistant for the life of the garment.

Nearly all flame resistant fibers commonly used today for industrial protective apparel are engineered by humans to be flame resistant. This means that what is commonly marketed as “inherent” could actually be synthetic fibers that begin as naturally occurring flammable substances. There are many examples of inherent FR garments in the marketplace today that contain non-FR fibers. Inherent fibers can also be treated with FR chemicals to further improve their FR properties.

Engineered or “treated” fabrics will char instead of burn, just like most well-known “inherent” fabrics. “Inherent” refers to the input fiber or material while the term “treated” is used to refer to a process. There is a great deal of science that goes into the process of properly and effectively engineering an FR fabric. Ultimately, using only one word to identify the entire FR process is flawed. Choosing inherent FR products over treated FR products, saying the first is better than the latter, is to make a comparison that is not based on science. There are many different inherent and treated FR fabrics in

the marketplace, and they can have vastly different performance results. Using the terms “inherent,” “treated” or “certified” fails to properly classify the complete product and its performance under real world conditions.

Finally, it's important to understand that a single product can be both inherent and treated; they are not mutually exclusive. Combinations of inherent and treated fibers are elements of some of the more advanced FR technologies today.

Consider All The Facts When Choosing Your FR Fabric

Marketing terms won't help you in the FR buying process. All industrial FR fabrics in the market are engineered to be flame resistant, using science and a variety of fibers, blends and methods. What matters most is the final product and its performance.

Make sure you know which fabric makes up your FR clothing and that it is guaranteed flame resistant for the life of the garment. For more information, visit westex.com/scienceiskey.

*This article was originally featured in Flame Resistant Insights, Volume 06, January 2016,
Web: <http://www.westex.com/ezine/january-2016/>*