Answers from Ashes

Homan, Harrison

Do you like the idea of the shirt on your back melting into a fiery goo on your bare skin? If not, read about the experiment I conducted to determine which clothing materials react the most dangerously in an environment where high heat and flame are present. I hypothesized that if I burn acrylic, cotton and wool fibers in the same way, then acrylic, a synthetic fiber, will be most flammable. I tested each of these materials by burning them over an open flame and recording how long and in what way they burned. My results showed that the acrylic fiber was the most flammable with an average incineration speed of 8.37 seconds. The acrylic fiber had a highly destructive way of burning that resulted in a hot, sticky, melting residue that eventually hardened into black beads. The natural cotton fibers were reluctant to catch fire, slow to burn and had an average incineration speed of 12.21 seconds that left the cotton blackened, resulting in a large amount of smoke. Lastly, the natural wool fibers were reluctant to catch fire and had an average incineration time of 10.48 seconds with little to no smoke and a crusty ash remaining. Based on my results, people in industries with a high risk of coming into contact with an open flame, such as scientists, electricians, police officers and firefighters, should wear clothing made from natural fibers as opposed to synthetic fibers in order to avoid increased risk of injury or death.

Awards Won: