



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title Burn Rate of Fabric Softeners	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this experiment is to observe the flammability of different fabrics and how harmful they may be on common fabrics worn daily.</p> <p>Methods/Materials Five types of fabrics are soaked in a solution with one of three fabric softeners and left to dry overnight. Using a stopwatch and lighter, the burn rate of each of the fabric softeners on the different fabrics was measured including a control group that was not soaked.</p> <p>Results Of all the softeners, Downy had the most fabrics with higher burn rates, which includes cotton and linen. Wool had the greatest burn rate of all fabrics regardless of softener. Fleece had approximately the same burn time for all softeners as well as the control. Snuggle had the highest burn time for silk and Gain had the highest burn time for wool.</p> <p>Conclusions/Discussion Fabric softeners, in fact, tend to increase the burning time of the fabrics. The type of fabric also has an effect on what the result of the flammability rate will be. Untreated natural fibers (i.e. cotton and linen) burn quicker than fabrics like wool and fleece. This concludes that fabric softener can increase the time it takes for fabric to completely burn. However, during the trials, it was observed that it was much easier to ignite these fabrics than the fabrics without any softener.</p>	
Summary Statement As measured by the burn rate of different fabrics, I found that fabric softeners can increase the time it takes for fabric to completely burn, but can make them easier to ignite.	
Help Received	