

# Are your natural or synthetic household items more fireproof

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## Home contents and house fires

Many of us think that natural fibers will combust more readily than synthetics. Well the truth is very different.

Back in 2009 the Fire Safety Research Institute (FSRI) conducted some experiments with typical home rooms, lite a fire and took time delay films. Very interesting to see the difference in both the timing of the flame propagation and the amount of smoke that's produced.

House fires that involve synthetic materials, such as plastics, rubber, or foam, will create a toxic smoke that's a combination of gases and particles. The smoke can contain multiple dangerous chemicals, including,

- Hydrogen cyanide: A poisonous gas that can cause headaches, dizziness, nausea, and vomiting. It's produced when synthetic polymers like nylon and polyurethane, or natural fibers like wool and silk, aren't fully consumed during a fire.
- Dioxins: A byproduct of burning chlorine-containing products, like plastics.
- Carbon monoxide: An asphyxiant gas.
- Acids: Such as hydrochloric and sulfuric acid.

- Oxides of nitrogen: An irritant gas.
- Polycyclic aromatic hydrocarbons: A complex molecule of toxins.

Although the original experiments in this study were done in 2009 it's worth noting the significance.

In a study , "[Analysis of Changing Residential Fire Dynamics](#)" 2011 they found that our homes are changing including more open concept layouts, higher ceilings (more air), and more furnishings that can lead to faster fires. And the really bad news, newer materials used in our homes literally get the thumbs down on their response to fire.

Their conclusion: "It was very clear that the natural materials in the legacy room released energy slower than the fast burning synthetic furnished modern room. The times to flashover show that the a flaming fire in a room with modern furnishings leaves significantly less time for occupants to escape the fire."

In 2020 FSRI captured a new [side-by-side burn comparison of natural and synthetic home furnishing](#). Since the original comparison video was released in 2009, FSRI has repeated the same experiment several times with similar results in terms of flashover times between the natural and synthetic furnished rooms. The flashover data from those experiments are very telling when you consider your ability to escape the fast moving fire.

## **Take Aways :**

Limit the amount of synthetic furniture and furnishings

Always keep fire extinguishers available and currently inspected

Remember smoke rises so get down lower to the floor in a

fire

Exit the building if its out of control and get to fresh air  
ASAP

Watch the film as its really amazing the difference between  
the rooms