

Spray foam insulation: Is it a fire hazard?



Margaret Badore
Design / Green Architecture
September 6, 2013



Video screen capture National Fire Protection Association

RELATED



LOSING THEIR HEALTH AND HOMES TO SPRAY POLYURETHANE FOAM



CHEMICALS IN SPRAY POLYURETHANE FOAM: HOW CAN SOMETHING SO TOXIC BE CONSIDERED GREEN?



SPRAY POLYURETHANE FOAM MANUFACTURER MAY FACE CLASS-ACTION LAWSUIT

Read part 3 of this series: [Spray Polyurethane foam manufacturer may face class-action lawsuit](#)

There are two major types of fire risks associated with spray polyurethane foam. First, there are the problems associated with burning foam in the case of a house fire. Secondly, there is the chance that an improper spray foam installation will generate enough heat to cause a fire.

Almost all spray foam insulation sold in the U.S. contains flame retardant, because untreated foam is a fire accelerant. The National Association of State Fire Marshals addresses this issue in a report, titled "[Bridging the Gap: Fire Safety and Green Buildings](#)," and urges builders to follow fire safety codes carefully because of spray foam's combustible properties:

"Most of the foam insulation products coming to the market are either polyurethane or expanded polystyrene foam, both of which are manufactured from petroleum derivatives. Untreated and exposed to elevated temperatures or flame, these foam products will burn vigorously, producing copious quantities of smoke, and spreading fire to other combustibles. Their burning characteristics require that they be manufactured with a fire retardant, be provided with a fire resistive barrier, or both."

The video below shows a test conducted by the National Fire Protection Association in 2011. The test compares three types of insulation: cellulose, fiberglass batting and spray foam. Unlike the other two insulations, the spray foam produces a heavy black smoke. It also quickly reaches "flashover" conditions, an intense heat that causes fire to spread rapidly. It's unclear if the "generic" spray foam in this test is treated with flame retardants or not.

 SEARCH

MOST POPULAR RIGHT NOW

1. [New International Dark Sky Park Opens in Michigan; Only Nine Others in the World](#)
2. [30 Vegetarian recipes you can cook in 30 minutes or less](#)
3. [Banksy uses toy animals to highlight animal cruelty and factory farming \[Exclusive Photos\]](#)
4. [Extinct tree grows anew from ancient jar of seeds unearthed by archaeologists](#)
5. [Home sweet bus: Student converts old school bus into versatile mobile home \(Video\)](#)
6. [Spinach lentil ragout over pasta \[Vegetarian\]](#)
7. [Bill Gates explains why fake meat is the future](#)
8. [6 Energy-Saving Portable Electric Space Heaters](#)
9. [10 Things to Know About Food on World Food Day](#)
10. [Build a \\$300 underground greenhouse for year-round gardening \(Video\)](#)

IS SPRAY FOAM INSULATION SAFE?



Losing their health and homes to spray polyurethane foam

A growing number of people are suffering from asthma and

chemical sensitization due ...

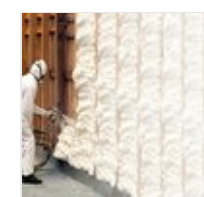
by Margaret Badore in Green Architecture

Chemicals in spray polyurethane foam: How can something so toxic be considered green?



Take a closer look at the chemical components of spray foam insulation and ...

by Margaret Badore in Green Architecture



Spray Polyurethane foam manufacturer may face class-action lawsuit

When spray foam installation goes wrong, homeowners face a complex legal mess.

by Margaret Badore in Green Architecture

Spray foam insulation: Is it a fire hazard?



From toxic smoke to chemical combustion, spray foam poses dangers when it comes ...

by Margaret Badore in Green Architecture

Greener alternatives to spray foam insulation

Some green builders say the risk of installing spray polyurethane foam is too ...

<http://www.treehugger.com/green-architecture/spray-foam-fires.html>

Go

SEP

OCT

NOV

14

2012

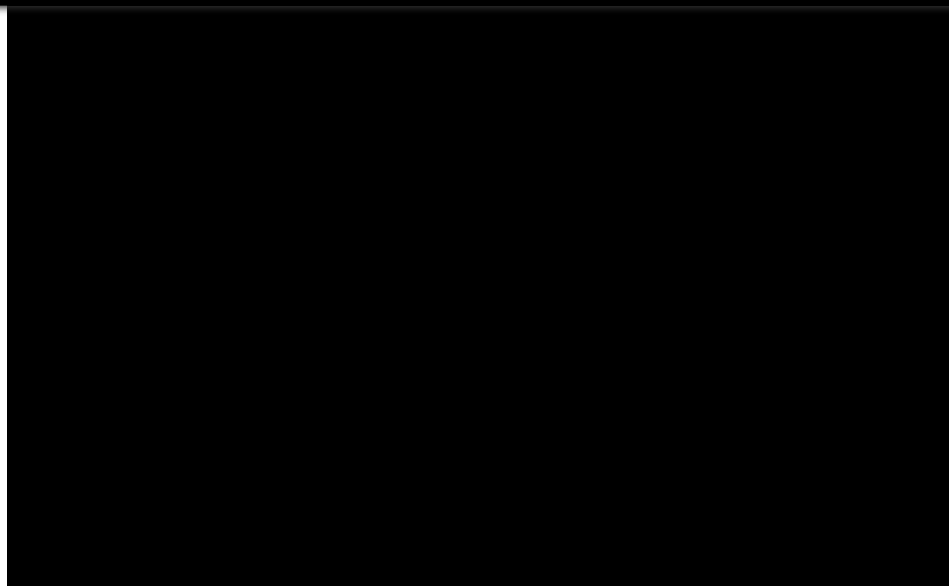
2013

2015

About this capture

52 captures

10 Sep 2013 - 16 Nov 2018



by Margaret Badore in Green Architecture



When spray foam catches fire, it releases a number of dangerous chemicals. Safety guidelines published by Bayer Material Science, a manufacturer of spray foam, warns that burning foam can release "isocyanates, carbon monoxide, carbon dioxide, nitrogen oxides, and hydrogen cyanide, among other compounds." Contact with the smoke can cause asphyxiation, asthma and other long-term health problems.

The use of flame retardants in spray foam poses a difficult catch-22. On one hand, the addition of retardants adds to the toxicity of the foam. Yet on the other hand, untreated foam fuels fires and the resulting fires can be disastrous.

Improper installation can cause fires

The other fire hazard is produced by foam itself. The chemical reaction that occurs during spray foam installation generates heat in an exothermic reaction. The [Bayer safety guidelines state](#) that if foam is applied too thickly or if layers of foam are applied on top of each other too soon, "the foam may char, smolder, or burn."

Although these fires are relatively rare, they do occur. In 2011, [Massachusetts state fire marshal Stephen D. Coan issued a memorandum](#) stating, "at least three fires, one being a fatal fire, are believed to have been started during the application of spray foam insulation." The fatal fire caused the death of a spray foam installer. The ensuing investigations eventually found that spray foam was in fact the cause.

Next: Greener alternatives to spray foam insulation

[See all our posts on insulation](#)

Tags: [Energy](#) | [Health](#) | [Insulation](#) | [Toxins](#)

[Pin It](#)

[RSS for Margaret](#)

How much is your roof worth with solar panels?

Profit from your roof space: find local deals on solar in your area, eliminate your power bill, and join the solar revolution.

Calculate my savings!

As seen in:

