

FACT SHEET



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UREA FORMALDEHYDE FOAM INSULATION (UFFI)

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Urea-formaldehyde foam insulation (UFFI) contains the chemical formaldehyde. UFFI was installed in many thousands of homes throughout North America in the early 1970's to help reduce fuel consumption used for heating and cooling during the energy crisis of that time period. Contractors made the foam product onsite by mixing ingredients to generate the foam. It was then injected into wall cavities to create a thermal barrier. The majority of installations were successful and resulted in an effective way to insulate homes. Formaldehyde levels in UFFI houses dropped rapidly after installation and if occupants experienced health complaints- mostly eye, nose, and throat irritation, headache, dizziness, difficulties with concentration, and nausea, they usually went away within a week or two. However, there were many cases where something went wrong during the installation. In these cases, the foam did not cure properly. This led to significant amounts of formaldehyde that continued to off-gas from the insulation into the indoor air. In these cases, people complained about symptoms lasting many months. Their symptoms were consistent with acute formaldehyde exposure.

Formaldehyde off gassing does lessen naturally over time. Ventilating the home by opening doors and windows and using fans to push air to the outside of the house helps to reduce formaldehyde levels further. Numerous studies performed 5 - 10 years after UFFI was installed showed that the formaldehyde concentrations in these homes decreased to low concentrations where health symptoms would not be expected. As a consequence, health officials do not believe that UFFI installed in homes during the 1970-80s represents an exposure problem today. The CT Departments of Public Health (CT DPH) and Consumer protection (DCP) still receive occasional calls from potential home buyers, sellers, and real estate agents concerned over the "stigma" related to UFFI houses. Inquiries about testing are related to these real estate transactions, not health complaints.

Things to Know

- Today, UFFI installed in homes during the 1970's and 1980's is not the public health threat that it once was, because most of the formaldehyde that off-gassed from UFFI has decayed away. Removal is not recommended.
- Testing the air in UFFI homes was widely done in the past, but is not recommended by CT DPH today. However, for those who are concerned or who have known formaldehyde sensitivities, air testing is still the only way to be sure that a particular home does not have elevated formaldehyde levels.
- Low levels of formaldehyde can be found in most indoor environments today because it is in many building materials and consumer products, including pressed wood furniture, carpets, fabrics, and cleaning products.
- If you decide to test, it is important to choose a method with the appropriate sensitivity. Please contact CT DPH at 860-509-7740 for further guidance.
- The Connecticut action level guideline for residential formaldehyde concentrations in air is 40 ppb (parts per billion). Most people will not experience acute health effects below that level.

History

It is estimated that almost 10,000 homes in Connecticut were insulated with UFFI between 1970 and 1981. By 1977, the CT DPH and CT DCP began receiving complaints from homeowners who believed that formaldehyde off-gassing from the insulation was causing adverse health effects. In addition to respiratory irritation effects, concern also arose over the possible carcinogenic effects of formaldehyde. Some individuals also developed formaldehyde sensitivities that caused them to have adverse reactions to very low formaldehyde levels.

CT DPH tested the air inside of UFFI homes as a result of complaints, and found some homes with elevated formaldehyde levels. CT DPH also conducted two studies that demonstrated a correlation between health complaints and formaldehyde levels. In 1981, as a result of these findings, the installation of UFFI was banned in Connecticut. However, widespread removal of the material was not recommended or undertaken due to the excessive costs and unknown benefits of removal.

CT Air Testing, 1977-1983

CT DPH sampled over 500 homes for formaldehyde from 1977 – 1983. Complaints continued after the 1981 ban. After 1983, residents were encouraged to use private testing companies to conduct the sampling and analysis. A review of data supplied by the private labs in 1986 indicated that most UFFI houses tested in Connecticut had formaldehyde levels much lower than in the past and below levels where health effects might be expected, which was about 0.1 parts per million (PPM) at the time.

Connecticut Study, 1986

In order to gain a better understanding of the possible health consequences of UFFI in homes over time, CT DPH undertook a study in the summer of 1986 to characterize formaldehyde exposures resulting from UFFI five years after it was banned. DPH selected 30 houses that it had tested as “high” houses in the past, along with 10 control houses that were not insulated with UFFI. The results of this testing indicated that the average formaldehyde levels in these “high” houses has decreased from 0.98 ppm at the time of the complaint to 0.08 ppm in 1986. (A guideline of 0.1 ppm was widely utilized as a non-occupational exposure level for formaldehyde at the time; note that CT changed the action level for indoor concentrations of formaldehyde to 0.04 PPM (40 PPB) in 2013.). A strong correlation was found between decreasing formaldehyde levels and age of the insulation. However, two “problem” UFFI houses with significantly elevated formaldehyde levels were also found. These problem houses were unique in that UFFI was present in both the walls and ceilings.

The 10 control homes not insulated with UFFI had an average formaldehyde level of 0.04 ppm, which was not statistically different from the UFFI houses’ average. These formaldehyde levels in the control homes result from a number of sources including pressed wood products, paneling, carpeting and upholstery.

Resources

- [Formaldehyde In The Home](#)
- [Insulation and Your Home: Health Considerations](#)

For more information please call or write to:

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