

VOCs From Spray Foam Insulation

Many questions are asked regarding VOCs that result from the installation of spray foam insulation (SFI). The common misconception is that methylene diisocyanate (MDI; CAS 101-68-8) is a VOC that lingers in the home after SFI installation. This is not the case. MDI is involatile at room temperature and is consumed in the polymerization reaction. Instead, the VOCs that are most prevalent in indoor air are the blowing agents that help to cause the SFI to expand or “foam” during polymerization.

A compendium of blowing agents currently acceptable for use with SFI and other foam polymers is listed at the EPA website <http://www.epa.gov/spdpublic/snap/foams/index.html>. Many of the blowing agents listed are hydrochlorofluorocarbons (HCFCs), which are routinely observed in indoor air samples. Recently, HFC-245fa, which is 1,1,1,3,3-pentafluoropropane (CAS 460-73-1), has been observed in air samples with more frequency. Vendors have added trans-1,2-dichloroethene (CAS 156-60-5) to the pentafluoropropane to enhance the HCFC solubility and to enhance the flame retardancy of the blowing agent mix. However, high levels of trans-1,2-dichloroethene have been observed in indoor air samples months after SFI application, leading to concerns regarding indoor air quality. In addition to HCFC blowing agents, hydrocarbons such as pentane (CAS 109-66-0), isopentane (CAS 78-78-4), and cyclopentane (CAS 287-92-3) are being increasingly used as blowing agents for SFI because they have lower environmental greenhouse impact. In general, blowing agents linger in indoor air well beyond the time of spray foam insulation installation.

About Prism Analytical Technologies, Inc.

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