



Formaldehyde Facts

Whether it's simple enlightenment or a heightened "green" consciousness, today's consumers often demand details about the environmental impact of the materials used in their homes and offices, including how these materials and products affect indoor air quality (IAQ). Architects and builders are rightfully concerned with IAQ and, as a result, are faced with increasingly complex decisions regarding ventilation and source control. Regarding the source effect on IAQ, an understanding of volatile organic compounds (VOCs) is critical to making good decisions.

Technological advancements have made it possible to detect VOCs in parts per million (PPM) and even in parts per trillion – trace levels not perceptible to humans. But just because a VOC is detected does not mean it is harmful. Indeed, some VOCs in indoor environments are both natural and desired. Substances like pinenes and terpenes, used to give the "natural wood scent" to household cleaning and deodorizing products, and the smell of baking bread are examples of common household VOCs.

There are three basic sources of VOC emissions from composite panel products. The first is wood, and more than 20 specific VOCs have been identified as originating from both softwood and hardwood. The second is the adhesives used to bond wood fibers together, with formaldehyde being the most common VOC emitted from these adhesives. The third is emissions from decorative laminates or surface

coatings, which themselves could contribute VOCs while at the same time forming an effective barrier to VOCs from the substrate itself.

All deserve our attention, and the one that has received the most over the years is formaldehyde, a naturally occurring compound and one of the most common and most-studied in the world. Our bodies produce small amounts of it each day, and formaldehyde-based resins similar to those used in building materials are used to make shampoo, photographic film, currency, textiles, clothing, cosmetics, fabric softeners and thousands of other consumer products.

Many of us remember dissecting frogs in high school biology class and recall the unpleasant smell of formaldehyde. We may also recall our first particleboard bookshelf in the 1960s, before the days of voluntary industry standards and low VOC emission levels. Today's particleboard and MDF are distant cousins of those first-generation products. Manufacturers have reduced formaldehyde emissions by as much as 80% since then, and we're not reminded of frogs when we buy new furniture. But what a consumer may ask today about VOC emissions such as formaldehyde is a reasonable question: What is an acceptable level?

Considerable research has been done to help answer that question. One of the most notable studies was conducted in 1994 by the U.S. Environmental Protection Agency (EPA). After extensive testing under several "loading" scenarios, where particleboard and MDF products were installed in an unoccupied, conventional three-bedroom



home, the study found low levels of formaldehyde emissions. Even at “high” loading concentrations, levels averaged 0.07 parts per million (ppm), well below the EPA’s 0.1 ppm informal level of concern. The Consumer Products Safety Commission (CPSC) published similar findings on the 0.1 ppm level. And consistent with the well-established science that formaldehyde emissions from particleboard and MDF diminish over time, EPA found that those levels decreased nearly 35% in the first month to an average of 0.046 ppm.

The next time clients ask about formaldehyde emissions from particleboard and MDF products, tell them

it’s a good question. Then remind them of the strides manufacturers have made in recent years, and encourage them to specify and use only low-emitting products – products that increasingly are the vast majority of what is available in the marketplace today.

For more information, contact the Composite Panel Association at 866/426-6767 or refer to the CPA technical bulletin Formaldehyde Emission Barriers in Particleboard and MDF, available at no charge at www.pbmdf.com. An Update on Formaldehyde – 1997 Revision from the U.S. Consumer Product Safety Commission is also available from the CPA or CPSC (www.cpsc.gov/CPSCPUB/PUBS/725.pdf) **2W**

CHOOSE LOW-EMITTING PRODUCTS

To ensure that your particleboard and MDF meet or exceed industry formaldehyde standards, specify only materials that meet American National Standards Institute (ANSI) requirements – ANSI 208.1 - 1999 for particleboard, and ANSI 208.2 - 2002 for medium-density fiberboard (MDF).

Also look for the CPA Grademark label, which indicates a product has been certified by CPA’s stringent and independently accredited program as meeting formaldehyde emission standards and other performance characteristics.