INFORM

Respiratory Hazards and Pressed-Wood Products

Why do products such as medium-density fiberboard (MDF) and particleboard pose a respiratory hazard?

Many brands of MDF and particleboard are made with urea-formaldehyde resin, which can off-gas formaldehyde. Formaldehyde is a respiratory irritant, a known cause of asthma, and is reasonably anticipated to cause cancer.[1] A 1997 study by the California Air Resources Board found that pressed-wood products made with urea-formaldehyde resin had the highest emission rates of all indoor products tested: from 100 to 300 micrograms of formaldehyde off-gassed from each square meter of product per hour.[2] New products off-gas more than older products.

Where are MDF and particleboard used?

MDF is used to make cabinets and furniture. Particleboard is used in flooring underlayment, doors, shelving, furniture, and cabinets.

What can I use instead?

Many manufacturers have made efforts to reduce formaldehyde emissions from their pressed-wood products. As a result, emissions from pressed-wood products containing urea-formaldehyde resin dropped from 80% to 90% between the early 1980s and late 1990s.[3] However, there are products available that eliminate formaldehyde emissions altogether. Products made with polymeric methyl diisocyanate (PMDI) do not off-gas any formaldehyde, and are therefore preferable to those made with formaldehyde resins.

Are there any health risks associated with PMDI?

PMDI can cause occupational asthma in people who work with it in manufacturing facilities, before the resin is cured. Manufacturers should therefore take steps to prevent worker exposure during manufacturing.[4] However, since the resin is cured before products are offered for sale, installing and working with pressed-wood products made with PMDI does not increase your risk of asthma.

Where can I find these alternatives?

Particleboard and MDF made without formaldehyde resins are available from most major suppliers, and many are flame-resistant. More information on formaldehyde-free MDF can also be found at http://www.advancedbuildings.org/main_t_finishes_formaldehyde.htm.

Type	Product	For More Information
Particle-board	WheatSheet	http://www.ecoproducts.com/Building_Division/BuildingSupplies/wheatsheet.htm, http://www.recyclops.com/wheatsheet.htm,
Particle-board	Pacific Board Straw Particleboard	http://www.environmentalhomecenter.com/shop.mv?CatCode=PRODUCT&ProdCode=PACIFIC_BOARD
MDF	Medite/Medex	http://www.sierrapine.com/products/mdf.htm
Fiberboard	WoodStalk	http://www.dow.com/bioprod/index.htm

Do non-formaldehyde pressed-wood products perform the same as formaldehyde products?

Yes. However, it is important to follow manufacturer guidelines for use and installation to obtain maximum performance from these products.

---

[1] Agency for Toxic Chemicals and Disease Registry, "Toxicological Profile for Formaldehyde," 1999, http://www.atsdr.cdc.gov/toxprofiles/tp111.html.
[2] California Air Resources Board, "Research Notes: Indoor Emissions of Formaldehyde and Toluene Diisocyanate," August 1997, No. 97-9, http://www.arb.ca.gov/research/resnotes/notes/97-9.htm.
[3] Consumer Product Safety Commission, "An Update On Formaldehyde: 1997 Revision," http://www.cpsc.gov/cpscpub/pubs/725.html.
[4] US Department of Energy, *Greening Federal Facilities*, May 2001, http://www.eere.energy.gov/femp/techassist/green_fed_facilities.html.

INFORM, Inc. (212) 361-2400 www.informinc.org