



## Volatile Organic Compounds (VOCs) from building materials and furnishings in the home

*Note: This guide expands upon another Environmental Health Guide that examines VOCs from electronic equipment.*

### What are VOCs?

VOCs are a class of chemical compounds that are given off by a wide range of household products, including furnishings, paints, glues, cleaning chemicals, air fresheners, dry-cleaned clothing, and electrical equipment. VOCs are also given off by moulds and are recognized by the characteristic mouldy smell in damp areas. See the guide “*Mould and moisture in the home*” for information on how to eliminate this problem.

Individual sources of VOCs may not pose a significant health risk in themselves but most homes, especially recently built ones, may contain multiple emission sources with the possibility of a cumulative build up of these gasses in the indoor environment. This is an increasingly recognized health issue, especially for susceptible members of the population, including infants and children, the elderly, the chronically ill, and people suffering from respiratory and cardiovascular disease.

This guide examines ways to eliminate or greatly reduce these pollutants in your existing home, or when selecting building materials if you are building one.

### VOCs from new appliances

When purchasing new electrical appliances that heat up during operation, such as stoves, care must be taken to run them for at least 5–6 hours in a well ventilated room to outgas VOCs that are emitted from the enamel coatings as they initially heat up. A chemical smell may be noticed during operation of the appliance for a few weeks

so it is advisable to have good ventilation during this time. This may also apply to new heaters/reverse cycle air conditioners, and to entertainment systems such as plasma TVs, that besides chewing up unacceptable amounts of power, also emit VOCs as they heat up.

There is also a problem with plastic appliances such as water kettles and toasters where traces of hormone disrupting compounds such as phalates and bisphenol A can be emitted into the air or water. It is therefore recommended to purchase stainless steel appliances wherever possible.

### VOCs from furniture and furnishings

Upholstered furniture such as chairs and couches can also be sources of VOC emissions. This includes plastic coated vertical blinds that emit VOCs especially when the blinds are exposed to direct sunlight. However when in a well ventilated space the majority of emissions are gone in about a month. The general rule is: If it is new, let it ventilate for a month before using in closed spaces.

Another source of VOCs is from new mattresses. Conventional mattresses are often made of petroleum-based polyester, nylon and polyurethane (PU) foam that, especially when new, emit VOCs. Some mattresses are also pre-treated with formaldehyde-emitting stain and water repellents whose manufacture releases perfluorooctanoic acid (PFOA), classified by the U.S. EPA as a likely human carcinogen. When these are manufactured they normally are immediately sealed in an air tight plastic covering that prevents out-gassing of the glues etc inside the mattress. Considering the amount of time spent

sleeping on mattresses, cumulative exposure to out-gassing VOCs is of concern, especially for sensitive members of the population as noted above. When purchasing a new mattress it is advisable to select one from floor stock that has been on open display for at least a month to allow the majority of VOCs to outgas.

### **Other sources of indoor VOC pollution:**

In new homes and offices a significant source of indoor air pollution can be from furniture products made from pressed woodboard that can outgas trace levels of formaldehyde, hexanal, xylenes, butanol and butyl acetate. Some people can have allergic reactions to pressed wood dust. Emissions can be reduced, however, by also painting the interiors of pressed wood cabinets with VOC free paints.

### **Recommendations**

- Wherever possible choose furnishings and furniture from natural, renewable or recycled materials, such as bamboo, untreated plantation timbers, hemp, untreated cotton, linen, canvas, wool, silk, rayon, feathers, down, latex rubber, linoleum etc.
- When building and renovating use natural materials such as plantation or recycled wood, stone, clay, steel, brick, glass, etc.
- Use non toxic paints and other finishes made from natural materials. Buy and use recycled items where possible.
- Support suppliers who provide information on what materials are used, how the product is made, and how it can be recycled - especially when there is an emphasis on the use of renewable or recycled materials with low toxicity and good durability.

- Look for Environmental Choice Australia labelling. This label is independent and government-endorsed. A product will only be licensed to use the label if it contains minimal levels of toxic substances. See <http://www.aela.org.au> for more information.
- Look for wood components that are certified as coming from a sustainable source.

### **Product Suppliers\***

#### *Paints*

#### **Livos Australia paints & finishes**

Website: <http://www.livos.com.au>

Tasmania South agent: Michael Meyer

Ph: 03 6239 6600

Email [Michael.meyer@bigpond.com](mailto:Michael.meyer@bigpond.com)

Website <http://www.healthybuild.com>

Tasmania North agent: Joanna Pinkiewicz (Perfect Interiors), Launceston

Ph: 03 6344 3838

Email [perfecto\\_interiors@yahoo.com.au](mailto:perfecto_interiors@yahoo.com.au)

#### **Porters Paints**

Fragments, 133 Elizabeth St, Hobart

Phone: (03) 6234 8927

Perfecto Interiors, 255 Wellington St

Launceston Ph: (03) 6344 3838

#### **Bio-products**

Importers / manufacturers of natural, non-toxic paints and finishes

Tasmanian agent: Going Solar, Carlton Victoria, Ph: 03 9348 1000

Email [info@bioproducts.com.au](mailto:info@bioproducts.com.au)

Website <http://www.bioproducts.com.au>

#### **Rockcote architectural coatings and renders (VOC free finishes)**

Hobart agent: Tony Watson

Ph: 0418146647

#### **Wattyl**

Produces the i.d. range of low VOC interior paints.

See: <http://www.aela.org.au/gec/paints.html>

*Flooring /floor finishes*

**Forbo Floorcoverings**

Manufacturers of natural floorcoverings

Ph: 02 9828 0201 / 1800 224 471

Email [info.au@forbo.com](mailto:info.au@forbo.com)

Website <http://www.forbo-flooring.com.au>

**Anro Floorcare Pty Ltd.**

Ph: 03 9779 5752

Email: [info@anrofloorcare.com.au](mailto:info@anrofloorcare.com.au)

Website <http://www.anrofloorcare.com.au>

**Powerscape**

Interior linings and floor underlays with high recycled content

Ph: 1800 226 215

Email [Russell.Evans@powerscape.com](mailto:Russell.Evans@powerscape.com) ,

Website <http://www.powerscape.com.au>

*VOC free / low emission  
carpeting/underlays*

**Hayes Flooring**

Ph: 6234 4117

Email: [info@hayesflooring.com.au](mailto:info@hayesflooring.com.au)

Website: <http://www.hayesflooring.com.au>

\*Also see suppliers on the Good Environmental Choice-Australia web site:

<http://www.aela.org.au>

Compiled by Don Maisch, Feb 2008