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Surface to Air

Similar to paint, sealants range from high to low toxicity. Natasha Palich guides you through the healthier options for finishing floors, windows and decks.

The finished surfaces within a house are exposed to significant wear and tear from everyday use, so the durability of the products used to seal these surfaces is an important consideration. However, it is just as important to select products that do not have a significant impact on the health of those occupying the home. The finishes applied to walls, floors, windows and other timber surfaces have the potential to off-gas toxic pollutants, both during application and in the days and weeks following. These pollutants – or Volatile Organic Compounds (VOCs) – have been shown to cause health problems including irritation to eyes, nose and throat, headaches, dizziness and skin disorders. When these are combined with the heavy metals often found in paints and finishes, it is worth doing some research to ensure the surfaces around you are not coated with toxic substances.

An earlier article in **green** investigated options for more environmentally sound and healthier paint products, so this article will focus on options for toxic-free surface finishes for floors, windows, decking and internal and external timbers.

Floors

Most, although not all, floor surfaces require a sealant of some sort to protect the flooring and provide a durable finish. The types of surface finishes available are often similar for different flooring materials. Some products are suitable for multiple floor types, but some are more specific.

All floors will require cleaning at some stage and since cleaning chemicals can emit just as many toxic substances into the air as an applied finish, toxic-free cleaning compounds should be selected as well.

Timber

The options for sealing timber floors include: a clear or coloured solvent- or water-based polyurethane; a clear or coloured solvent- or water-based stain; an oil-based finish; or a solvent- or water-based wax.

A polyurethane is a type of varnish and is the most common floor finish for timber floors. Solvent-based polyurethanes are generally more widely used than water-based products. Solvent-based polyurethanes will create a plastic layer over the timber, whereas a water-based polyurethane allows the texture of the timber to be felt through the finish. Solvent polyurethanes are made from petroleum products and as the finish dries the solvent evaporates releasing VOCs into the air. Finishes with a high solvent level will emit more VOCs than finishes with low solvent level. Water-based polyurethanes have a low solvent level and thus are less toxic than their petroleum-based counterparts.

An oil finish is a readily available non-toxic option for timber and cork floors. Oil products have an oil as a base (such as a tung or linseed oil) and are absorbed into the timber. Some oils have solvents in them, some are water-based, some are pure oil, so check the contents carefully. Water mixes or pure oils will be less toxic than solvent mixes. Be aware that while oils may be a natural material and non-toxic, they can give off a strong odour for a few days.

Stains are simply a surface finish with an embedded colour. Stains can be solvent or water, polyurethane or oil, so if you are after a coloured finish to the timber, apply the same considerations (i.e.

water versus solvent, natural versus synthetic) to the selection of a stain as you would to a clear finish.

Waxes can be applied to timber floors, but again solvent-based waxes will still emit harmful VOCs. Waxes can be applied directly to a timber floor, or over another finish such as a varnish or stain. Waxes need to be regularly applied and rubbed into the floor.

Concrete

The options for sealing concrete floors are similar to timber: a solvent- or water-based polyurethane, which can be stained; oil-based sealants; or a wax. Penetrating sealants and waxes will not necessarily provide resistance to stains. The polyurethanes do provide a barrier over the concrete and thus could be argued to be more durable. Waxes also need to be re-applied more regularly than polyurethane sealants. Again, a water-based polyurethane will have much lower toxic emissions than a solvent-based finish.

Lino/vinyl/rubber

Linoleum, vinyl and rubber flooring generally do not need to have a surface finish applied as the material itself provides an integral finish that is durable, slip resistant and easily cleaned. There are other environmental considerations when selecting a resilient floor, including the material the product is made from, the ability for it to be recycled, and the cleaning regime required.

Tiles

Like resilient floors, tiles do not necessarily need a surface finish. Many tiled products have an integral glazed or baked finish; however, there are tiles that do require sealing. Sealants designed for tiles can be either a penetrating sealant or one that creates a layer over the tile. Again, select a sealant that is water-based and has low or zero solvent content.

Windows and internal timbers

The products available for timber windows and internal timbers are similar to those for timber floors: a solvent- or water-based polyurethane; a solvent- or water-based stain; or an oil-based product. Windows can also be painted. The inside of windows and other internal timber does not need as durable a coating as a timber floor, so often a "lighter" product can be used. The external side of timber windows needs to be waterproof, UV resistant and extremely durable. Options for exterior timber, including the outside of windows, are detailed below. Products with a water base will have the lowest VOCs. Natural oil products can be non-toxic but still emit an odour for a while.

Decking and external timber

Finishes for decking and external timber are typically oil-based. Oil-based finishes penetrate into the timber to provide a protective waterproof layer and withstand UV radiation. Oil finishes can be pure oils, water-based or solvent-based. Again a water-based finish will have lower VOCs than a solvent-based finish. Pure oils are often based on natural products but can have a slight odour for a few days. There are also varnishes other than polyurethane for external timber but the same advice applies – use a water-based product. →



Selected products

The following list is a sample of low toxic products available in the Australian market. It is not a complete list but it will provide a range of products to start with for different applications. It is intended as a guide, and users should liaise with product suppliers for exact application information.....→

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Product

Where to use

Bio Product - www.bioproducts.com.au

Bio Natural Wood Oil <i>Pure oil</i>	● Interior timber
Bio Natural Timber Oil Clear <i>Oil-based</i>	● External timber including windows
Bio Teak Oil <i>Oil-based</i>	● Internal; use on timber, cork, unglazed tiles, and stone floors
Bio Hard Floor Wax <i>Wax product</i>	● Internal; use on timber, stone, tile and slate floors
Bio Timber Care Polish <i>Wax product</i>	● Internal; use on varnished, oiled or waxed floors; timber, cork, lino or stone floors
Bio Floor Varnish <i>Tung oil-based</i>	● Internal timber, stone or cork floors
Bio Wood Varnish <i>Oil-based</i>	● External timber including windows

Livos - www.livos.com.au

Ardvos Universal Wood Oil	● Interior timber, furniture, floors, window frames and doors
BIVOS Oil Wax	● For maintenance of previously waxed or oiled timber and terracotta tile and linoleum
KUNOS Natural Oil Sealer	● Interior solid timber, furniture, floors (timber and concrete), window frames and doors
LINUS Wood and Cotto Oil	● Primer for interior and exterior timber and stone surfaces
MELDOS Natural Resin Hardening Oil	● For internal timber and floors, concrete floors, and porous stone

Synteko - www.synteko.com.au

Synteko Natural Oil Floor Finish <i>Water-based; solvent and VOC-free</i>	● Internal timber floors
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Volvox - www.coloursbynature.com.au

All made from natural materials; water-based; low-VOC

Floor and Furniture Hard Wax <i>Wax product</i>	● Internal timber and timber, cork or unglazed tiled floors
Hard Oil <i>Natural Oil</i>	● Internal timber, cork and stone floors
Hard Oil Wax Finish <i>Oil wax combination</i>	● Internal timber and cork floors and timber furniture
High Solid Hard Oil Finish <i>Oil wax combination</i>	● Internal timber and cork floors and timber furniture
Liquid Wax <i>Wax product</i>	● Internal timber, cork, stone or tiled floors
Timber Deck Finish <i>Oil-based product</i>	● External timber and decking
Wood Oil <i>Oil-based product</i>	● Internal timber

Oikos - www.designerpaintco.com

Novalis Wax Finish Woodstain	● Internal and external timber
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Cooee - www.cooeeproducts.com.au

Tinted Timber Treat <i>Oil-based stain</i>	● External timber including decking
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