

and Industrial Research Organisation (IRO) estimates that indoor air pollution costs the Australian community \$12 billion each year in lost productivity due to illnesses it causes, while estimates show that in recently renovated buildings, approximately 70 percent of the indoor pollutants emanate from the paint.

Conventional paint manufacture relies heavily on petro-chemicals. The product we have traditionally decorated our homes with is a 'liquid plastic' that remains in liquid form until it is applied to a surface. Once the paint's solvent (or 'carrier') has evaporated into the atmosphere, volatile organic compounds (VOCs) are photochemically with sunlight to form ozone. Although ozone is a necessary compound in the atmosphere, ozone levels in the lower atmosphere are smog-producing. As they rise into the upper atmosphere, they react again to form

house gases. Conventional oil-based paint can contain anything up to 55 percent VOCs, meaning that architectural coatings are responsible for 9 percent of all VOC emissions in Australia. Considering that in 2007, 60,000 tonnes of VOCs were emitted by the paint industry, finding a way to reduce the VOC amount in paints would be a huge step towards significantly reducing harmful ozone formation. The more immediate danger of chemical-based paints comes from interior use and the impact upon human health. Trades people are exposed to a variety of carcinogenic and toxic chemicals every day. Side effects that are generally dismissed as 'hazards of the trade' include dizziness and headaches from solvent-based products. However VOCs are known to be responsible for causing or exacerbating more serious health conditions including dermatitis and asthma, as well as Organic Solvent Syndrome (also known as Painters' Syndrome), which - in extreme cases - can cause colour vision deficits, tremor, impaired vibration sensation in the legs and cognitive impairment. In addition, painting contractors are known to have a higher risk of developing

of paint. Manufacturers have released new 'low-VOC' paint products onto the market, which do represent an improvement on the pungent, toxic products that are still being used on many houses.

However, a genuinely sustainable, healthy approach to painting is about a lot more than just VOCs. Sustainability Victoria recently issued a *Course for Sustainable Painting Practices*, in which sustainability was defined as 'meeting the needs of the present without damaging the environment, without depleting a resource ... ensuring the environment and resources are renewable without compromising the ability of future generations to meet their own needs.' The implication here is that entire manufacturing processes need to

“Painting contractors are proven to have a higher risk of developing certain cancers, and frequent exposure to the chemicals can even cause genetic damage and increased likelihood of miscarriage”

be evaluated for their long-term impact on the environment. There are six key factors to consider when buying paint.

First, it is important to ask if the ingredients are sourced from highly abundant or renewable resources. These might include clay, plant oils, mineral silicates, or even waste materials. Some new products available on the Australian market are manufactured using collagen extracted from waste egg shells and may use emulsified, recycled, waste industrial oil.

Second, does the product perform well enough to provide reasonable durability? Products that don't last aren't sustainable, because they require more frequent re-coating, thereby consuming more resources.

Third, is the packaging easily recycled?

Fourth, do the manufacturers comply with environmental regulations?

Fifth, have the manufacturer's environmental claims been independently evaluated by a third-party, such as Good Environmental Choice Australia?

Lastly, if it is an exterior paint, does it offset its carbon emissions by reflecting solar radiation, and increasing the building's energy efficiency? Nano-ceramic paint

meet these criteria, it's possible to reduce the environmental impact of the paint industry. The future of the paint industry must be built on these standards.

Rockcote is a Queensland-based manufacturer aiming to become a fully sustainable and regenerative business by the year 2016, partly by meeting the criteria listed above. The company's principles are derived from *Biomimicry* - a philosophy based on modelling business systems and manufacturing processes on natural living systems. The company is now working on ground-breaking bio-plastics which use a resin derived from a biomass to replace the petrochemicals in their current products. The goal is to achieve the same high-durability of petro-chemicals with the renewable resources used to create

natural paints. They also plan to replace titanium dioxide, a major ingredient of all paints, with a more environmentally friendly equivalent, as well as to introduce biodegradable packaging.

Another Queensland company, NMP Coatings, is a manufacturer of the first zero-VOC epoxies in Australia that recently raised the possibility of using a naturally occurring epoxy resource in the form of an oil extract from desert-grown plants. This natural oil can be utilised in the production of several coating-related products such as plasticisers and eco-friendly solvents.

A change in the way we think about paints is imperative if we want to minimise our environmental impact and reduce the threat to our health. By using the innovations that green painting companies are developing, it's possible to reduce the amount of VOCs in a typical home by up to 92 percent, while simultaneously using paint to improve a building's energy efficiency, thereby cutting energy costs by up to 20 percent. Using greener paints in sustainable buildings doesn't have to add significant cost to the project. Ultra-low VOC paints are comparable in price with premium paints, and plant or mineral based paints are only moderately more expensive.

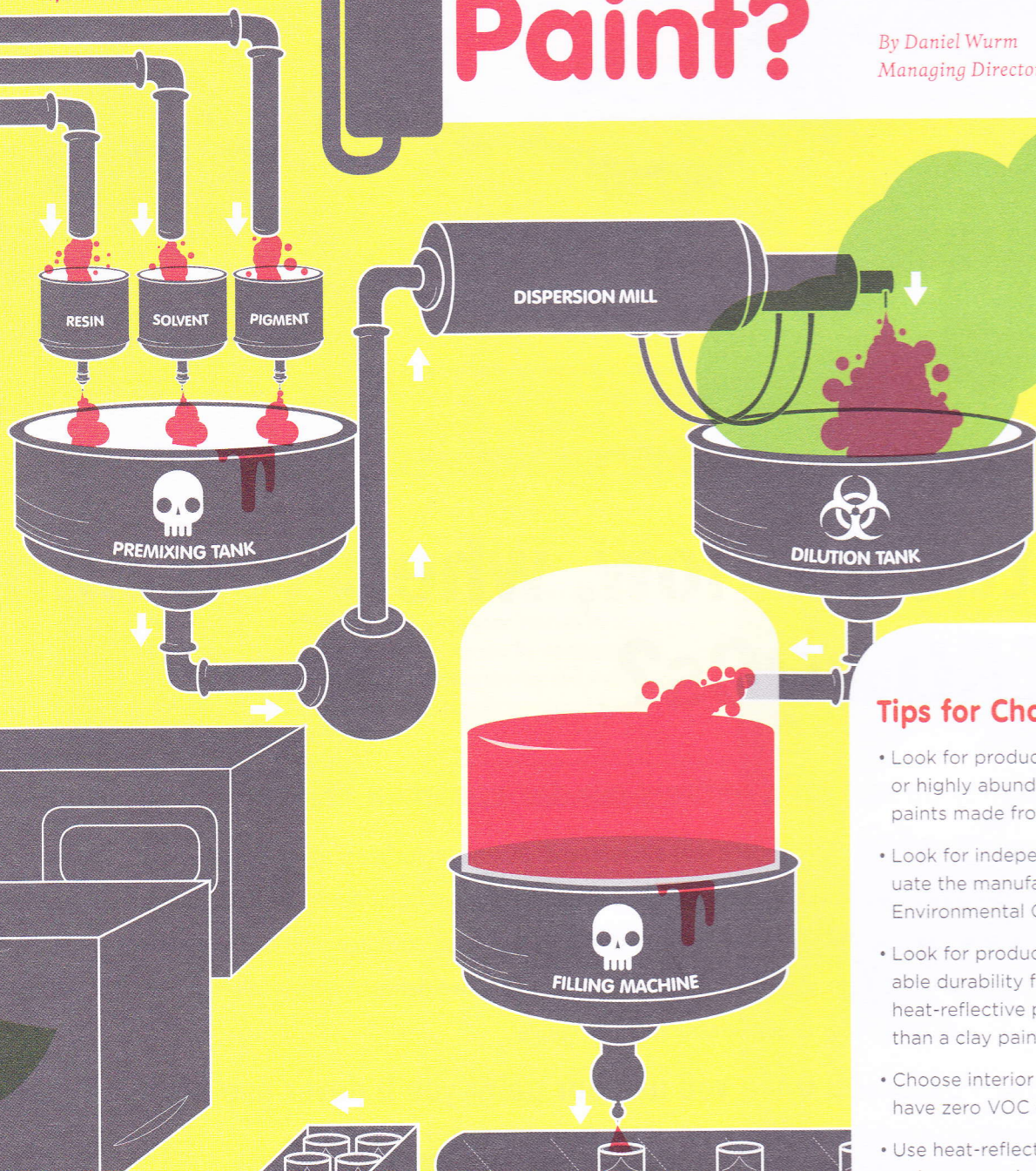
In Europe and California greener paint technologies are now the industry standard; this needs to happen in Australia as well.

How Green is your Paint?

When thinking about ways we can reduce our impact on the environment, the toxicity of conventional paint is much underrepresented. Few of us think about the paint we use in our homes and the effects it has on our health.

By Daniel Wurm
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10,000 CHEMICALS



Tips for Choosing

- Look for products made from recycled or highly abundant resources. Water-based paints made from plant oils are a good choice.
- Look for independent eco-labels that evaluate the manufacturing process. Environmental Choice Australia is a good one.
- Look for products that have a long life span. A durable paint will last longer than a clay paint on an exterior wall.
- Choose interior paints that have zero VOC content.
- Use heat-reflective paint on your roof.