

GREENHOUSE INFORMATION SHEET



PAINT

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One of the most important ways of creating a healthy home is to reduce the level of toxic materials that you surround yourself with. Using paint that is derived from the petro-chemical industry contributes to CO₂ emissions and to global warming.

In 1989, the World Health Organisation's International Agency for Research on Cancer found that professional painters and decorators faced a 40% increased chance of contracting cancer, and went so far as to classify painting and decorating as a 'carcinogenic' activity by definition.

Green paints and treatments are created from natural plant oils and waxes and are suspended in plant based solvents and can be composted.

The products cost more, but if you think about how long you are going to live with the paints and treatments that you use, and consider your health, and the environmental impact of paint, then they are well worth investing in.

Paints are a major source of indoor air pollution. The US Environmental Protection Agency puts paint on its top five list of environmental hazards. The most commonly cited, but by no means only, pollutants in paints are Volatile Organic Compounds (VOCs). Other chemicals often included in paint are: petrochemicals solvents, mercury, formaldehyde, and benzene. Additionally, lead, cadmium and chromium can often be found in pigments. That distinctive smell of paint is actually dibutyl and diethyl phthalate - two very volatile compounds!

Paints usually contain a pigment (colour), a binder or resin (carrier and a glue for the colour), solvent (application aid) and a dryer. In natural paints materials tend to be plant-based rather than synthetic. Synthetic ingredients such as vinyl and acrylic used in most emulsion paints tend to be by-products of the petrochemical industry.

◆ VOCs from solvent and paint emissions contribute to harmful ground-level ozone and smog formation. VOCs also react in the atmosphere to create greenhouse gases.

◆ By using green VOC-free paints, you are helping to do your bit to reduce air pollution.

◆ In the UK, the level of VOCs are classified in five categories: Minimal (0-0.29%), Low, Medium, High and Very High (VOC content greater than 50%).

◆ For each tonne of paint produced, the resulting waste can be anything up to 30 tonnes.

◆ They are very slow to bio-degrade, and emit toxins in the process.

◆ They contain Volatile Organic Compounds, rapidly contributing to atmospheric pollution, particularly to accumulations of low level ozone.

◆ Paint strippers and cleansers, such as white spirit, are highly toxic to the environment and sewage systems.

VOLATILE ORGANIC COMPOUNDS – VOCs

One of the most important issues relating to household paint is that of VOCs, especially in gloss paints.

Natural paints are the only true non-toxic paint since they contain no VOCs, and are made from natural ingredients such as water, vegetable oils, plant dyes, and natural minerals. The natural paint movement began in Germany at the end of the 20th century as a response to the concerns about the impact of modern chemical paints on the environment and health.



Waste Paint

An estimated 56 million litres of paint, enough to fill 50 Olympic-sized swimming pools, is stored in homes and garages or just thrown away. This paint tends to be stored and then disposed of in landfills. Never pour leftover paint into drains. Contact your council about recycling or disposal, offer it to friends, or donate it to social projects such as Community RePaint (see Useful Contacts).

Health In The Home

In the indoor environment of buildings there is off-gassing (emission of noxious gas) from ingredients used in building materials, paints and furniture. This may result in poor indoor air quality. Effects on people using the building may include: lowered vitality, more asthma and respiratory illnesses, headaches, and other symptoms of what has now come to be known as Sick Building Syndrome. According to Construction Resources, studies have shown that the indoor environment is now up to ten times more polluted than the external environment.

Types Of Paint: Best To Worst

1. Plant-Based Water-Borne

Difficult to find for timber coatings, but other, particularly interior, paints are available. These paints involve the least quantity of toxins in production, use and disposal.

2. Plant-Based Solvent-Borne

Organic oil-based paints use solvents, but often they are derived from plant sources rather than petrochemicals, though are not necessarily non-toxic (eg. turpentine). Organic paint solvents still contain VOCs and therefore contribute to photochemical smog.

3. Synthetic Water-Borne

These paints are the products of similar processes to solvent-based paints, except that emulsifiers and water as well as other chemicals are used instead of the oil-based solvents. They tend to have lower VOC contents. They emit far less vapour during use than solvent-borne paints.

4. Synthetic Solvent-Borne

The ingredients for these come almost exclusively from the petrochemicals industry. They are usually produced with high energy processes from a raw material which has a high energy content and is a finite resource. Ingredients are often toxic, as is the solvent white spirit.



ANIMAL INGREDIENTS

Vegans should be aware that casein is a common ingredient in paint, especially natural paint because it is an alternative to the use of plastic binders. It is derived from milk proteins and is commonly used in emulsion paints. Other animal ingredients used by the paint industry include beeswax and shellac but these are more commonly used in wood treatments and varnish.

The Greenhouse Story

The Greenhouse is primarily a 19th century Norwich building built with a timber roof, joists, floorboards and partitioning. The building had been used by three generations of printers. The printers lived on site until the 1950's, so the building was a mix of light-industrial and domestic areas. The Greenhouse Trust inherited a lot of timber and building resources treated with highly toxic paint and treatments. The timber – doors, skirting and window frames – were stripped using heat guns rather than chemical dipping. This helped maintain the quality of the timber, and was cheaper, though labour intensive. Reused flooring was machined and sanded, a bench saw being a vital tool throughout the re-build. Existing plaster walls were treated with old/recycled paint in order to avoid mixing paint systems.



The Auro treatments have all stood the test of time, and are easy to clean and replace. The exception to this was the decision to use amber varnish on the office floor. The wear and tear of a busy office soon scratches and removes the impact of this luxurious and glossy (not for long) treatment.

INTERNAL WOOD TREATMENTS

The following plant based Auro treatments have been used:

- ✓ Café and meeting room floor – wax primer, wax
- ✓ Caretaker's flat and office floors – wood primer, amber varnish
- ✓ Staircase – plant shellac (glossy finish to handrails)
- ✓ Staircase - matt plant varnish to balustrade and steps (carpeted due to heavy use and to reduce noise)
- ✓ Caretaker's staircase – wood primer and English Red
- ✓ Existing wooden doors, skirting and window frames (stripped by hand) – wood primer and varnish
- ✓ Window shutters – wood primer and varnish
- ✓ Chair and picture rails – primer, undercoat and gloss finish
- ✓ Shop and café tables, chairs, shelves and counter – wood primer and varnish
- ✓ Walls – emulsion – white, Cream, Magnolia, Terracotta, Holly Green
- ✓ Ceilings – emulsion – white, Apple Green and Sky Blue
- ✓ Toilets – Eggshell – matt gloss partition; white and green gloss (doors)
- ✓ Toilet and lobby floors - (pamnets and quarry tiles) wax treatment
- ✓ Radiators – white primer and gloss paint
- ✓ Fireplaces – green and black gloss (decorative)
- ✓ Joist and insulation frames treated with Borax



The Trust used both new and re-used flooring, all of which get heavy use.

A number of existing walls that had former oil, tar and lead based treatments were repainted using second-hand tins of paint.



Auro external wood paints were used on this highly decorative building.

EXTERNAL WOOD TREATMENTS

The following Auro treatments have been used:

- ✓ Ground floor windows, doors, cornices and signage – black and white, Auro primer, undercoat and gloss
- ✓ Primer and black gloss for external steel framework. 'Red lead' based treatment under (re-used steel frame)
- ✓ Green woodstain and wood primer for garden timbers
- ✓ Wood primer and varnish for garden furniture, primer and green gloss to metal panels
- ✓ 1st and 2nd floor windows and dormer frames – have low solvent, oil based gloss, over existing/ petroleum based treatments
- ✓ Black and white masonry paint for rendering on front and back walls. Brick sealant used on chimneystacks
- ✓ Black Hammerite used on existing wrought iron guttering/pipework
- ✓ Auro black primer and gloss used on new guttering, fire-escape stairs

WHAT you can do

PAINT CHECKLIST

Research the product you are using to ensure it is correct for the job you want it for. Remember that the least ecological product of all will be one that doesn't last or do the job well.

- ✓ Use low emission paints and finishes
- ✓ Buy plant-based paints Generally, plant-based, water-borne paints are the best buy, followed by plant-based, solvent-borne ones with natural solvents. Try to avoid those using titanium dioxide.

What if you have to buy conventional paint?

- ✓ For conventional emulsion paints, the Green Building Digest recommends zero VOC, 100% acrylic emulsion and avoid alkyd (high solvent) and vinyl emulsions.

How to create a healthier/more sustainable home:

- ✓ Use hard flooring and avoid carpets/coverings that will harbour dust mites, chemicals, etc.
- ✓ Use linoleum/marmoleum instead of vinyl flooring
- ✓ There is generally no need to treat internal timbers if basic good design principles are followed
- ✓ Establish the cause of insect or rot attack and rectify using environmental controls where possible (adjust temperature, ventilation, etc. to make atmosphere undesirable to fungi and pests)
- ✓ Avoid chemical damp proofing where possible. Most damp problems can be solved by repairing defects in the building structure, e.g. clearing gutters and drains, unblocking air bricks, repainting etc.

Useful Contacts

RECYCLING UNUSED PAINTS

Community Re-Paint
Units 5 & 6, Collers Way, Wood Dalling Road,
Reepham, Norfolk, NR10 4SW
Tel: 01603 873128
Web: www.communityrepaint.org.uk

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GREEN BUILDING SUPPLIERS

Construction Resources
16 Great Guildford Street, London, SE1 0HS
Tel: 0207 4502211
Web: www.constructionresources.com

The Green Shop
Cheltenham Road, Bisley, Stroud, Gloucester,
GL6 7BX
Tel: 01452 770629
Web: www.greenshop.co.uk

Marmoleum supplier:
John Lewis
All Saints' Green, Norwich, NR1 3LX
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