

**A SIMPLE GUIDE FOR  
ARCHITECTS, HOME OWNERS  
AND PAINTERS  
TO REDUCE PAINT VOC EMISSION**

Volatile organic compounds (VOCs) from paints and related materials such as coatings, primers, thinners and cleaning solvents cause photochemical smog, affecting our health and reducing the visibility in our city. Property developers, architects, interior designers, home owners, paint suppliers and painters can all contribute to reducing VOC emissions by following some simple tips in this pamphlet. For advice specific to your needs, please consult the relevant experts or paint and equipment suppliers.

### **Some ideas to reduce the use of paint**

- Consider if some less prominent areas such as stairwell, refuge floor or car park really need the same high-quality painting work.
- Consider the use of prefabricated items or furniture instead of coating the items on site. Emission from the coating of prefabricated items in a factory environment can normally be more effectively controlled than say paint-spraying the same on site.

- Consider partial touch-up instead of a complete repaint.
- If you are selling your apartment, consider no new painting at all or agree with the new owner or occupier on the preferred paint specifications to avoid abortive work in a short period of time.

### **Some tips on the selection of paints**

- Select low-VOC or water-based paint over solvent-based paint as a thumb rule. Water-based paint normally has less VOC than solvent-based paint and the use of water-based paint will eliminate the need to use organic cleaning solvent and their eventual disposal as toxic waste.
- Always choose products with lower VOC content. Regulated paint products are required by regulation to display their VOC content in either the trade catalogue, Material Safety Data Sheet, container or packaging.
- Choose paints which give a less glossy finish. Less glossy paints normally have lower VOC content than those giving a glossy finish.

- Make a good estimate on the amount of paint to be used and do not buy more than is necessary. Most manufacturers do provide simple calculation methods to help work out the estimate.
- Review regularly your contract specification on the paint's VOC content to cater for new and more environment-friendly products.
- For metal works, consider specifying no- or low-VOC paint such as water-based paint OR the use of off-site powder-coated components.
- When considering paint with a green label, find out the approving criteria on VOC content and compare it with other labeling schemes. The standard and monitoring mechanism among various schemes may vary considerably.
- Always use quality paint and choose colours with versatility in mind so that the need to change the colour of the painted surface is not as frequent. A more durable paint is less expensive in the long run.
- Choose primer and top coat that are compatible with the paint selected.

### **What are the benefits of using low-VOC paint?**

- Less odorous and little or no hazardous fumes to workers during application.
- No odour once dried and the painted area can be occupied sooner.
- Reduced fire and explosion risks from the use of smaller amount of flammable liquids, i.e. thinner and solvent.
- Reduced storage need for flammable liquids - Category 5 dangerous goods.

### **How can I better manage paint use to reduce wastage?**

- Keep proper records of paint and solvent in stock. Use the records to help identify wastage.
- Chart and publicize the paint and solvent usage per floor area of comparable projects to encourage saving.
- Provide training and regular reminder to staff, including occasional painters like property maintenance staff, to be conscious about reducing use of paint and solvent.

**What are the points to note in preparing surface to be painted or stripping old paint?**

- Paint lasts longer for a better prepared surface, i.e. clean, dust free and with any visible cracks, peeling or blisters removed. If there is existing paint, find out what it is and repaint with a compatible paint type.
- Choose low-VOC retarder (化白水) or high-pressure water jet to remove the old paint instead of using high-VOC stripper chemicals. Old solvent-based paints may require mechanical method such as disc grinding to remove. Hot-air blower can be effective for stripping paint from metal surface.

## **How should I prepare the paint?**

- Prepare the paint according to manufacturer's instructions. Use measuring cup or container with known volume to ensure a correct thinning ratio is achieved.
- Adopt the correct thinning ratio for a specific application like brushing, using a roller or spraying.
- Use eco-thinner, i.e. thinner reformulated with exempt compounds having limited contribution to ozone formation.
- Adopt the "little and often" practice to prepare paint on site. Excessive paint would often end up evaporated and wasted.

### **Some advice for the painting work**

- Avoid painting during bad pollution days, i.e. with Air Pollution Index greater than 100, unless you are using no- or low-VOC paint and related products.
- Avoid spraying where possible and use brushes or rollers instead. When spraying is preferred, use HVLP (high-volume low-pressure) spray guns to reduce the amount of thinner and any overspray.
- Use low-VOC or water-based primer/sealer instead of base sealer (索光油) for wallpaper.
- Minimize the presence of soft materials (e.g. fabrics and pillows) during and just after painting. If present, these materials would absorb VOCs released from the paints for gassing out later on.

## **How should I clean up after painting?**

- Always choose low-VOC cleaning solvent. In fact, you do not need any VOC-containing solvent if you are using water-based paint in the first place.
- Filter and reuse soiled solvent for cleaning brushes and rollers.
- Clean the brush or roller after every job to avoid the build-up of stubborn deposit and hence reducing the need for excessive cleaning later on.
- Minimize the amount of solvent for cleaning and use squeeze bottle to deliver solvent to the cleaning rag instead of dipping the rag in solvent in an open-mouth container.

## **Some advice on paint storage and handling on site**

- Store solvents and paints in lidded, light-colour containers in a cool place away from strong sunlight.
- Keep the lid on as much as possible to prevent evaporation. Seal with adhesive tapes if necessary to prevent vapour loss.
- Avoid spills.
- Adopt a recycling and reuse programme for paint and solvent left-over. For larger-scale operations, consider using proper distillation equipment (together with spray gun cleaning washer as appropriate) for solvent recycling.

## **Some advice on floor coating**

- Use water-based coating for wooden parquet floor (which may require slightly longer curing period) and reduce the use of high-VOC crystal coating (水晶油).
- Choose high-solids low-VOC paint and better still, water-based paint for car parks and general concrete floors.

### **Where can I get more information?**

For more information, please contact:  
Environmental Protection Department  
33/F, Revenue Tower  
5 Gloucester Road, Wan Chai  
Hong Kong  
Telephone / Facsimile. 2838 3111  
or visit EPD's website at: <http://www.epd.gov.hk>

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