

For discussion on  
28 November 2005

**LEGISLATIVE COUNCIL  
PANEL ON ENVIRONMENTAL AFFAIRS**

**CONTROL PROGRAMME ON VOLATILE ORGANIC  
COMPOUNDS (VOCs)**

**Purpose**

This paper reports on the progress on developing a programme to control the emissions of volatile organic compounds (VOC) and seeks Members' comments on the proposed programme.

**Background**

2. VOCs are a major air pollutant causing the formation of smog. To improve the air quality of the Pearl River Delta Region, the Hong Kong Special Administrative Region Government (the Government) and Guangdong Provincial Government reached a consensus in April 2002 to reduce the regional emissions of VOCs, among other air pollutants.

3. On 28 June 2004, the Administration briefed Members of the then EA Panel on introducing a mandatory two-stage scheme to control the emissions of VOCs. Under the first stage, paints, printing inks and selected consumer products manufactured or imported for sale in Hong Kong would need to be registered with the Environmental Protection Department (EPD), tested on VOC contents and bear labels indicating the level of VOC content with a warning message that VOCs cause air pollution, so that consumers would be able to choose products containing lower VOC contents. After implementing the first stage scheme, the Government would then review the effectiveness and consider the need to implement further measures to control the VOC contents of specific products at the second stage of the scheme.

4. Members supported the general intention to control VOC emissions and to consult the public and the affected trades on their views

on the scheme proposed.

## **Consultation**

5. In late September 2004, the Administration launched a consultation exercise on the scheme as set out in paragraph 3. A list of organisations consulted is attached in **Annex A**. During the ensuing public consultation period, we met hundreds of representatives from various trades. We also briefed the Panel on Commerce and Industry in December 2004 of the proposal. While many indicated general support to improve air quality, a number of concerns about the proposal were raised. Major practical issues raised are -

- (a) A labelling approach may not be effective in reducing VOCs since consumer behaviour is affected by many other factors;
- (b) Hong Kong is relatively small as a market. There may be practical problems for overseas manufacturers to produce labels specifically for Hong Kong or for importers to obtain the necessary information for producing the labels;
- (c) The registration procedure and testing requirement can impose significant efforts and costs on suppliers;
- (d) Some small traders may not be able to comply with the regulation and would be driven out of business;
- (e) It is not cost-effective to target very small emission sources, e.g. consumer goods with only small volume of sales; and
- (f) Sufficient transition period for the affected trades will be required.

6. Recognising these concerns, we held a number of in-depth discussions with the trades with a view to finding measures that could effectively reduce the emission of VOCs and yet minimise the impacts on the affected parties. To work with the trades in partnership, we set up a Working Group on Regulatory Control of VOCs (the “Working Group”) in May 2005, with participation of representatives of the affected trades. The Working Group comprises four Subgroups –

- (a) the Personal Care Subgroup with representatives of the cosmetics industry, focussing on consumer products for personal care purpose;
- (b) the General Consumables Subgroup, participated by both local and international manufacturers and retailers of other affected consumer products;
- (c) the Paints Subgroup with major stakeholders in the production, sales and applications of architectural paints; and
- (d) the Printing Subgroup, consisting of both printers, ink dealers and the end users of print products.

7. The Working Group and the constituent Subgroups have proven to be very useful forums for EPD and the trades to work together to find practical means to reduce VOC emissions from various products and to fine tune the VOC control programme.

### **The Proposed Control Programme**

8. After thorough discussions at the Working Group and Subgroups, we propose a revised control programme consisting of the following major elements –

- (a) The regulatory requirements will be sector-specific so that they will be the most suitable and effective for the sector concerned;
- (b) The scope of control for consumer products can be narrowed down to the six largest emitting sources (i.e. hairsprays, insecticides, insect repellents, air fresheners, floor wax strippers and multi-purpose lubricants). They already account for about 80% of VOC emissions from consumer products;
- (c) The programme can be speeded up and limits on VOC contents can be imposed directly without the first-stage labelling programme. (In the previous proposal, VOC limits can be imposed soonest in 2009); and
- (d) Mandatory registration and testing of VOC products by certified laboratories are no longer required.

Products may be imported or manufactured as long as they comply with the relevant VOC limits. The enforcement efforts will be simpler.

More details are elaborated in the following paragraphs.

### *Consumer Products*

9. VOC limits will be introduced in successive stages for hairsprays, insecticides, insect repellents, air fresheners, floor wax strippers and multi-purpose lubricants, as set out in **Annex B**. When fully implemented, these limits will be equivalent to the prevailing standards in force in California (mandated by the Californian Air Resources Board), which are the most stringent in the world so far. Suppliers of some products may need to reformulate or source alternative products, including other environmentally-friendlier products. The timetable should allow sufficient time for the market to adapt to the change without excessive disturbance.

### *Paints*

10. VOC limits on paints based on the two most stringent standards currently in force in California (i.e. those by the South Coast and Bay Area Air Management Districts) will be introduced progressively as set out in **Annex C**. In order to comply with them, suppliers of paints will need to reformulate their paint products, or replace some of the high-VOC solvent-based paints by water-based alternatives. Transition time will be allowed for making these changes as well as to allow consumers to adapt to these substitutes. Since paints are major sources of VOCs, paint suppliers have also agreed, prior to the implementation of the VOC limits, to temporarily affix a warning label on those paints with VOCs in excess of the future limits.

### *Printing*

11. VOC limits equivalent to the Californian South Coast standards will be introduced according to the implementation timetable as detailed in **Annex D**. Some of the existing ink products may have to be replaced with alternative environmental inks. In considering the implementation timetable, the Government has given careful consideration to some special printing processes in need of more flexible

treatment. For instance, for inks in screen printing (for compact discs, handbags, decals, signboards, etc.), many operators are very small. We have thus allowed a longer period of transition than others for the operators to comply with the regulation. For heatset printing, it is more effective to control VOC emissions by process control devices. Hence the proposal is to require heatset printing machines to install effective emission control device to reduce the VOC emission during printing process.

### *Sales reporting*

12. Upon the enforcement of the VOC limits, we will require manufacturers and importers to submit to EPD information regarding the annual amount of products sold at the local market. Such information will allow the Government to estimate the volume of reduction in VOCs after the implementation of the regulation, and assess its effectiveness.

### *Application and Enforcement*

13. The new regulation to be proposed will cover regulated products locally manufactured or imported either by sole agents or parallel importers, for sale at the local market or proprietary use (i.e. the importer or manufacturer is also the end consumer). We do not propose to impose liability on retailers except that they should provide accurate information regarding the origin of products sold when required. The regulation will not apply to products for export, re-export, transshipment or in transit, or those products manufactured or imported prior to the enforcement of the respective VOC limits (manufacturers or importers however have the obligations to keep records of the products imported or manufactured in case of being required for assisting investigations of suspected offences).

14. To enforce the proposed new regulation, the EPD will conduct surprise surveillance and spot checks at the local market, with the assistance of the Customs and Excise Department at import points. In the event of suspected contravention, importers or manufacturers may be asked to provide formulation data to assist investigation. The relevant testing methods for different products will be prescribed in the law.

### *Review Mechanism*

15. In order to review the effectiveness of these measures and

resolve any difficulties arising during their implementation, it is important for EPD to maintain a partnership and dialogue with the trades. The Working Group mechanism will thus continue. Through the Working Group and its constituent Subgroups, we will review the progress of the regulation and, if necessary, the need for further control measures and standards.

## **CONCLUSION**

16. The proposed programme is more direct and effective than the previously proposed two-stage scheme and yet will minimise the impacts to the affected trades. We plan to introduce the regulation in 2006 and the first batch of VOC limits will come into force on 1 January 2007. The majority of the VOC limits will come into force by 1 January 2009. We estimate that the new regulation could help reduce approximately 8 000 tonnes of VOCs. To further reduce VOC emissions, we will also explore measures to control other VOC sources such as industrial solvents.

17. Members are invited to comment on the revised proposal.

**Environment, Transport and Works Bureau**  
**November 2005**

**Organizations Met and Consulted since September 2004**

Local

1. Hong Kong Architectural Coating Association
2. Consumer Council
3. Business Environment Council
4. Green Council
5. Graphic Arts Association of Hong Kong
6. The Hong Kong Printers Association
7. Hong Kong Printing Industry Workers Union
8. The Cosmetic and Perfumery Association of Hong Kong Ltd.
9. The Hong Kong Suppliers Association
10. The Hong Kong Association of Certification Laboratories Ltd.
11. Environmental Vehicle Repairers Association Ltd.
12. Federation of Beauty Industry (H.K.)
13. Federation of Hong Kong Industries
14. Hong Kong Retail Management Association
15. Friends of the Earth
16. Green Power
17. Clean the Air
18. 14 individual laboratories
19. four individual retail chains
20. 19 consumer product suppliers
21. 46 ink suppliers/printing companies
22. 18 paint suppliers

23. 11 suppliers/companies from automobile industry
24. 19 other individual suppliers

Overseas

25. The National Paint & Coatings Association, Inc., US
26. Japan Paint Manufacturers Association
27. The French Trade Commission, Hong Kong Office
28. European Union, Hong Kong Office
29. The French Federation of Fragrance, Cosmetics & Toiletries
30. The Association of International Chemical Manufacturers Ltd., US
31. The European Cosmetic Toiletry and Perfumery Association (COLIPA)
32. The Aerosol Association of Australia Inc.
33. The International Fragrance Association (IFRA)
34. Japan Cosmetic Industry Association
35. Japan Soap and Detergent Association
36. The Cosmetic, Toiletry and Fragrance Association, US
37. The Consumer Specialty Products Association, US
38. The Soap and Detergent Association, US



## Plan for control on VOCs in consumer products

Type of Products *	Max. VOC Limits <sup>#</sup>	Implementation Date
Hairsprays – US Federal Standard	80	1 January 2007
Multi-purpose lubricants	50	1 January 2008
Floor wax strippers		1 January 2008
Light and medium polish build-up	3	
Heavy polish build-up	12	
Double phase aerosol air fresheners	25	1 January 2008
Single phase aerosol air fresheners	30	1 January 2008
Dual purpose air freshener and disinfectant aerosol air fresheners	60	1 January 2008
Flea and tick insecticides	25	1 January 2008
Insecticide foggers	45	1 January 2008
Aerosol lawn and garden insecticides	20	1 January 2008
Hairsprays – CARB standard	55	1 January 2009
Aerosol flying bug insecticides	25	1 January 2009
Air fresheners (solid or gel)	3	1 January 2009
Air fresheners (liquid or pump spray)	18	1 January 2009
Aerosol insect repellents	65	1 January 2009
Aerosol crawling bug insecticides	15	1 January 2009

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\* CARB-equivalent standards will be imposed on the regulated consumer products unless specified otherwise.

# As expressed in weight percent.

### Plan for control on VOCs in architectural paints

Type of Products	Max. VOC Limits <sup>#</sup>	Implementation Date
(a) Bond Breakers	350	1 January 2008
Clear Wood Finishes		
(b) Varnishes	150	1 January 2010
(c) Sanding Sealers	150	1 January 2008
(d) Lacquers	550	1 January 2010
(e) Clear Brushing Lacquers	650	1 January 2008
(f) Concrete-Curing Compounds	350	1 January 2008
(g) Dry-Fog Coatings	400	1 January 2008
(h) Fire-Proofing Exterior Coatings	350	1 January 2008
Fire Retardant Coatings		
(i) Clear	650	1 January 2009
(j) Pigmented	350	1 January 2010
(k) Flat Coatings	50	1 January 2009
(l) Floor Coatings	250	1 January 2010
(m) Graphic Arts (Sign) Coatings	500	1 January 2008
(n) Industrial Maintenance Coatings	250	1 January 2010
(o) High-Temperature Industrial Maintenance Coatings	420	1 January 2010
(p) Zinc-Rich Industrial Maintenance Primers	250	1 January 2010
(q) Japans/Faux Finishing Coatings	350	1 January 2009
(r) Magnesite Cement Coatings	450	1 January 2008
(s) Mastic Coatings	300	1 January 2008
(t) Metallic Pigmented Coatings	500	1 January 2010
(u) Multi-Color Coatings	250	1 January 2009
(v) Non-Flat Coatings	150	1 January 2009
(w) Pigmented Lacquers	275	1 January 2008
(x) Pre-Treatment Wash Primers	420	1 January 2010
(y) Primers, Sealers and Undercoaters	200	1 January 2010
(z) Quick-Dry Enamels	250	1 January 2010

<sup>#</sup> Maximum VOC content of product in a 'ready to use' condition and expressed in grams per litre of coating, less water and less exempt compounds, and excluding any colorant added to tint bases.

(aa)	Quick-dry Primers, Sealers and Undercoaters	200	1 January 2010
(ab)	Recycled Coatings	250	1 January 2008
(ac)	Roof Coatings	50	1 January 2008
(ad)	Roofs Coatings, Aluminium	250	1 January 2008
(ae)	Roof Primers, Bituminous	350	1 January 2009
(af)	Rust Preventative Coatings Shellacs	400	1 January 2010
(ag)	Clear	730	1 January 2008
(ah)	Pigmented	550	1 January 2008
(ai)	Specialty Primers	350	1 January 2008
(aj)	Stains	100	1 January 2008
(ak)	Interior Stains	250	1 January 2008
 Swimming Pool Coatings			
(al)	Repair	340	1 January 2008
(am)	Other	340	1 January 2008
(an)	Traffic Coatings	150	1 January 2010
(ao)	Waterproofing Sealers	250	1 January 2010
(ap)	Waterproofing Concrete/Masonry Sealers	400	1 January 2008
 Wood Preservatives			
(aq)	Below- Ground	350	1 January 2008
(ar)	Other	350	1 January 2008
(as)	Low-Solids Coatings	120 <sup>@</sup>	1 January 2010
(at)	Superior Durability Solvent-borne Coatings for Metal	420	1 January 2010
(au)	Pre-Treatment Coatings for Metal	420	1 January 2010
(av)	Extreme High-Gloss Coatings for Metal	420	1 January 2010
(aw)	Granite Look-a-like Coating/ Textured Undercoaters	100	1 January 2009
(ax)	All Other Architectural Coatings Not Listed Above	250	1 January 2008

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<sup>@</sup> Maximum VOC content of product in a 'ready to use' condition and expressed in grams per litre of material, and excluding any colorant added to tint bases.

**Plan for control on VOCs in printing ink**

<b>Type of Products</b>	<b>Max. VOC Limits<sup>#</sup></b>	<b>Implementation Date</b>
Lithographic ink	300	1 January 2007
Letterpress ink	300	1 January 2007
Gravure ink	300	1 January 2009
Flexographic ink - non-porous substrate	300	1 January 2007
Flexographic ink - porous substrate	225	1 January 2007
Flexographic fluorescent ink	300	1 January 2007
Screen printing ink	400	1 January 2009

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<sup>#</sup> Maximum VOC content of product in a 'ready to use' condition and expressed in grams per litre of ink, less water and less exempt compounds