

L.N. 258 of 2006**AIR POLLUTION CONTROL (VOLATILE ORGANIC
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AIR POLLUTION CONTROL (VOLATILE ORGANIC COMPOUNDS) REGULATION

(Made by the Secretary for the Environment, Transport and Works under section 43 of the Air Pollution Control Ordinance (Cap. 311) after consultation with the Advisory Council on the Environment)

PART 1

PRELIMINARY

1. Commencement

This Regulation shall come into operation on 1 April 2007.

2. Interpretation

In this Regulation, unless the context otherwise requires—

“ASTM”, in relation to a test method, means the test method published by ASTM International;

“coating” (塗料) means a material that is applied to a surface in order to beautify, protect or provide a barrier to such surface;

“colourant” (色劑) means a solution of dyes or a suspension of pigments;

“container” (容器) means the part or parts of any regulated product that serve only to contain, enclose, incorporate, deliver, dispense, wrap or store the chemically formulated substance or mixture of substances that is solely responsible for accomplishing the purpose for which the regulated product was designed or intended;

“diluent” (稀釋液) means a liquid such as an organic solvent, thinner or water which when added to a regulated product reduces its viscosity;

“document” (文件) includes a book, voucher, receipt or data material, or information that is recorded in a non-legible form but is capable of being reproduced in a legible form;

“goods in transit” (過境貨品) means regulated products that are brought into Hong Kong solely for the purpose of taking them out of Hong Kong and that remain at all times on the vessel or aircraft that brought them into Hong Kong;

“importer” (進口商) means a person who, whether as owner, consignee, agent or broker, is in possession of or entitled to the custody or control of a regulated product that is imported;

“label” (標籤) means any written, printed or graphic matter affixed to, applied to, attached to, blown into, formed on, moulded into, embossed on or appearing upon an article;

“manufacture” (生產), in relation to a regulated product, means to prepare, produce, pack, repack or assemble the product;

“manufacturer” (生產商) means a person who manufactures in Hong Kong a regulated product, but does not include a person whose business only involves adding colourant to the tint base of a regulated product;

“NIOSH” means the National Institute for Occupational Safety and Health of the United States;

“packaging” (包裝) includes any article onto or into which the principal display panel and other accompanying literature or graphics are incorporated, etched, printed or attached;

“prescribed limit” (訂明限制), in relation to—

(a) a regulated paint, means the maximum limit of the volatile organic compound content specified for that regulated paint in Part 2, 3 or 4 of Schedule 1 (as may be applicable);

(b) a regulated printing ink, means the maximum limit of the volatile organic compound content specified for that regulated printing ink in Part 2 or 3 of Schedule 2 (as may be applicable); and

(c) a regulated consumer product, means the maximum limit of the volatile organic compound content specified for that regulated consumer product in Part 2, 3 or 4 of Schedule 3 (as may be applicable);

“regulated consumer product” (受規管消費品) means a regulated consumer product listed in Part 2, 3 or 4 of Schedule 3;

“regulated paint” (受規管漆料) means a regulated paint listed in Part 2, 3 or 4 of Schedule 1;

“regulated printing ink” (受規管印墨) means a regulated printing ink listed in Part 2 or 3 of Schedule 2;

“regulated product” (受規管產品) means a regulated paint, a regulated printing ink or a regulated consumer product;

“sale” (出售) includes—

(a) offer or expose for sale;

(b) supply without payment; and

(c) offer or expose for supply without payment;

“tint base” (調色基) means a coating to which colourants are to be added;

“transhipment” (轉運) means the importation of a regulated product that—

(a) is consigned on a through bill of lading or a through air waybill from a place outside Hong Kong to another place outside Hong Kong; and

- (b) is or is to be removed from the vessel, vehicle or aircraft in which it was imported, and, before being exported, is either—
- (i) returned to the same vessel, vehicle or aircraft; or
 - (ii) transferred to another vessel, vehicle or aircraft, whether it is or is to be transferred directly between such vessels, vehicles or aircrafts or whether it is to be landed in Hong Kong after its importation and stored, pending exportation;

“US EPA” means the United States Environmental Protection Agency;

“volatile organic compound” (揮發性有機化合物), in relation to—

- (a) a regulated paint, has the meaning assigned to it by Part 1 of Schedule 1;
- (b) a regulated printing ink, has the meaning assigned to it by Part 1 of Schedule 2;
- (c) a regulated consumer product, has the meaning assigned to it by section 2 of Part 2 of Schedule 3 or Part 6 of Schedule 3 (as may be applicable); and
- (d) a lithographic heatset web printing machine, has the meaning assigned to it by Schedule 4;

“volatile organic compound content” (揮發性有機化合物含量), in relation to—

- (a) a regulated paint, means the content of volatile organic compounds as determined under section 9;
- (b) a regulated printing ink, means the content of volatile organic compounds as determined under section 12;
- (c) a regulated consumer product, means the content of volatile organic compounds as determined under section 15; and
- (d) a lithographic heatset web printing machine, means the content of volatile organic compounds in any waste gas emitting from the machine as determined under section 16.

PART 2

PROHIBITIONS AND REQUIREMENTS RELATING TO THE VOLATILE ORGANIC COMPOUND CONTENT OF REGULATED PAINTS

3. Prohibition on manufacture and import: regulated paints

(1) On or after 1 January 2008, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated paint that is listed in Part 2 of Schedule 1 and has a volatile organic compound content in excess of the prescribed limit.

(2) On or after 1 January 2009, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated paint that is listed in Part 3 of Schedule 1 and has a volatile organic compound content in excess of the prescribed limit.

(3) On or after 1 January 2010, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated paint that is listed in Part 4 of Schedule 1 and has a volatile organic compound content in excess of the prescribed limit.

4. Requirement to carry a label during the transitional period: regulated paints

(1) During the transitional period, a manufacturer or an importer of a regulated paint that has a volatile organic compound content in excess of the prescribed limit shall ensure that a label that complies with section 5 is fixed durably and conspicuously—

- (a) on the surface of the packaging of the regulated paint; or
- (b) if the manufacturer or importer supplies the paint without any packaging, on the surface of the container of the regulated paint.

(2) In subsection (1), “transitional period” (過渡期), in relation to a regulated paint listed—

- (a) in Part 2 of Schedule 1, means the period beginning on 1 April 2007 and ending on 31 December 2007;
- (b) in Part 3 of Schedule 1, means the period beginning on 1 April 2007 and ending on 31 December 2008; and
- (c) in Part 4 of Schedule 1, means the period beginning on 1 April 2007 and ending on 31 December 2009.

5. Specifications for labels required under section 4: regulated paints

(1) A label for the purposes of section 4 must be in both the English and Chinese languages.

(2) The label for a regulated paint listed in Part 2 of Schedule 1 must contain the following text—

“The content of volatile organic compounds in this product exceeds the prescribed limit that is to be implemented with effect from 1 January 2008. Volatile organic compounds cause air pollution.”;

“本產品的揮發性有機化合物含量，超逾將於 2008 年 1 月 1 日實施的訂明限制。揮發性有機化合物引致空氣污染。”。

(3) The label for a regulated paint listed in Part 3 of Schedule 1 must contain the following text—

“The content of volatile organic compounds in this product exceeds the prescribed limit that is to be implemented with effect from 1 January 2009. Volatile organic compounds cause air pollution.”;
“本產品的揮發性有機化合物含量，超逾將於 2009 年 1 月 1 日實施的訂明限制。揮發性有機化合物引致空氣污染。”。

(4) The label for a regulated paint listed in Part 4 of Schedule 1 must contain the following text—

“The content of volatile organic compounds in this product exceeds the prescribed limit that is to be implemented with effect from 1 January 2010. Volatile organic compounds cause air pollution.”;
“本產品的揮發性有機化合物含量，超逾將於 2010 年 1 月 1 日實施的訂明限制。揮發性有機化合物引致空氣污染。”。

(5) The size of the label must be at least—

- (a) 100 mm by 60 mm; or
- (b) one-fifth of the area of the largest surface of the packaging or container.

(6) If the label is of the size referred to in subsection (5)(a), the letters of the English text must be at least 3 mm high and the characters of the Chinese text must be at least 5 mm high.

(7) If the label is of the size referred to in subsection (5)(b), the size of the letters of the English text and the characters of the Chinese text must be adjusted in proportion to the size of the letters and characters referred to in subsection (6).

6. Requirement for certain information to be displayed: regulated paints

(1) A manufacturer or an importer of a regulated paint shall disclose in the Material Safety Data Sheets, trade catalogues, packaging or containers of any regulated paint manufactured or imported on or after 1 April 2007, the following information—

- (a) the type of regulated paint to which the regulated paint belongs;
- (b) the date of its manufacture; and

- (c) the volatile organic compound content of the regulated paint in the form in which it is supplied in the packaging or container or, if dilution with solvent or thinner is necessary before application, the volatile organic compound content after dilution as calculated on the basis of the dilution ratio recommended on the product.

(2) For the purposes of subsection (1)(c), the volatile organic compound content is to be expressed in grams per litre of coating or material as determined under Part 5 of Schedule 1.

7. Requirement of product notification: regulated paints

(1) If any regulated paint is manufactured or imported on or after 1 April 2007, the manufacturer or importer of the paint shall, prior to the sale or use of the paint in Hong Kong, give the Authority the following information in writing in respect of the paint—

- (a) the name of the manufacturer or importer of the regulated paint;
- (b) the type of regulated paint to which the regulated paint belongs;
- (c) the brand and full name of the regulated paint;
- (d) the volume or weight in which the regulated paint is sold;
- (e) when dilution of the regulated paint with solvent or thinner is necessary before application, the brand and full name of the diluent to be used and its specific gravity;
- (f) the volatile organic compound content of any colourant added to the tint base of the regulated paint, expressed in grams per litre of coating or material less water and less exempt compounds within the meaning of Part 1 of Schedule 1; and
- (g) the volatile organic compound content of the regulated paint in the form in which it is supplied in the packaging or container or, if dilution with solvent or thinner is necessary before application, the volatile organic compound content after dilution as calculated on the basis of the dilution ratio recommended on the product.

(2) For the purposes of subsection (1)(g), the volatile organic compound content is to be expressed in grams per litre of coating or material as determined under Part 5 of Schedule 1.

(3) For the avoidance of doubt, the information referred to in subsection (1) is not required to be given in the case of a change of packaging or product formulation that has no effect on the volatile organic compound content of the regulated paint.

**8. Requirement to submit a report:
regulated paints**

(1) Subject to subsection (2), a manufacturer or an importer of a regulated paint shall submit to the Authority on or before 31 March of each year a report for the period from 1 January to 31 December of the previous year.

(2) A manufacturer or an importer of a regulated paint shall submit to the Authority the first report under this section, in the case of a regulated paint—

- (a) listed in Part 2 of Schedule 1, on or before 31 March 2009;
- (b) listed in Part 3 of Schedule 1, on or before 31 March 2010; and
- (c) listed in Part 4 of Schedule 1, on or before 31 March 2011.

(3) A report under this section must be in writing and contain the following information in relation to the regulated paints manufactured or imported by the manufacturer or importer during the period to which the report relates—

- (a) the name of the manufacturer or importer of the regulated paint;
- (b) the type of regulated paint to which the manufactured or imported regulated paint belongs;
- (c) the brand and full name of the regulated paint;
- (d) the volume or weight in which the regulated paint is sold; and
- (e) the total volume or weight, excluding packaging and container, of the regulated paint as sold by the manufacturer or importer in Hong Kong, or used by the manufacturer or importer himself.

**9. Determination of volatile organic compound
content: regulated paints**

(1) For the purposes of this Regulation, the volatile organic compound content of a regulated paint must be determined in accordance with the test method specified in Part 5 of Schedule 1.

(2) The Authority may permit to be adopted in place of the test method referred to in subsection (1) any other method, equivalent to that test method.

PART 3

PROHIBITIONS AND REQUIREMENTS RELATING TO THE
VOLATILE ORGANIC COMPOUND CONTENT OF
REGULATED PRINTING INKS**10. Prohibition on manufacture and import:
regulated printing inks**

(1) On or after 1 April 2007, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated printing ink that is listed in Part 2 of Schedule 2 and has a volatile organic compound content in excess of the prescribed limit.

(2) On or after 1 January 2009, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated printing ink that is listed in Part 3 of Schedule 2 and has a volatile organic compound content in excess of the prescribed limit.

**11. Requirement to submit a report:
regulated printing inks**

(1) Subject to subsections (2) and (3), a manufacturer or an importer of a regulated printing ink shall submit to the Authority on or before 31 March of each year a report for the period from 1 January to 31 December of the previous year.

(2) A manufacturer or an importer of a regulated printing ink shall submit to the Authority the first report under this section, in the case of a regulated printing ink—

- (a) listed in Part 2 of Schedule 2, on or before 31 March 2008; and
- (b) listed in Part 3 of Schedule 2, on or before 31 March 2010.

(3) The period for which a report is required to be submitted under subsection (2)(a) is 1 April 2007 to 31 December 2007.

(4) A report under this section must be in writing and contain the following information in relation to the regulated printing inks manufactured or imported by the manufacturer or importer during the period to which the report relates—

- (a) the name of the manufacturer or importer of the regulated printing ink;
- (b) the type of regulated printing ink to which the manufactured or imported regulated printing ink belongs;
- (c) the brand and full name of the regulated printing ink;
- (d) the volume or weight in which the regulated printing ink is sold; and

- (e) the total volume or weight, excluding packaging and container, of the regulated printing ink as sold by the manufacturer or importer in Hong Kong, or used by the manufacturer or importer himself.

12. Determination of volatile organic compound content: regulated printing inks

(1) For the purposes of this Regulation, the volatile organic compound content of a regulated printing ink, except a gravure ink, must be determined in accordance with the test method specified in section 1 of Part 4 of Schedule 2.

(2) The volatile organic compound content of a gravure ink must be determined in accordance with the test method specified in section 2 of Part 4 of Schedule 2.

(3) The Authority may permit to be adopted in place of the test method referred to in subsection (1) or (2) any other method, equivalent to the relevant test method.

PART 4

PROHIBITIONS AND REQUIREMENTS RELATING TO THE VOLATILE ORGANIC COMPOUND CONTENT OF REGULATED CONSUMER PRODUCTS

13. Prohibition on manufacture and import: regulated consumer products

(1) During the period beginning on 1 April 2007 and ending on 31 December 2008, a person shall not manufacture in Hong Kong or import into Hong Kong, a regulated consumer product that is listed in Part 2 of Schedule 3 and has a volatile organic compound content in excess of the prescribed limit.

(2) On or after 1 January 2008, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated consumer product that is listed in Part 3 of Schedule 3 and has a volatile organic compound content in excess of the prescribed limit.

(3) On or after 1 January 2009, a person shall not manufacture in Hong Kong or import into Hong Kong a regulated consumer product that is listed in Part 4 of Schedule 3 and has a volatile organic compound content in excess of the prescribed limit.

14. Requirement to submit a report: regulated consumer products

(1) Subject to subsections (2) and (3), a manufacturer or an importer of a regulated consumer product shall submit to the Authority on or before 31 March of each year a report for the period from 1 January to 31 December of the previous year.

(2) A manufacturer or an importer of a regulated consumer product shall submit to the Authority the first report under this section, in the case of a regulated consumer product—

- (a) listed in Part 2 of Schedule 3, on or before 31 March 2008;
- (b) listed in Part 3 of Schedule 3, on or before 31 March 2009; and
- (c) listed in Part 4 of Schedule 3, on or before 31 March 2010.

(3) The period for which a report is required to be submitted under subsection (2)(a) is 1 April 2007 to 31 December 2007.

(4) A report under this section must be in writing and contain the following information in relation to the regulated consumer products manufactured or imported by the manufacturer or importer during the period to which the report relates—

- (a) the name of the manufacturer or importer of the regulated consumer product;
- (b) the type of regulated consumer product to which the manufactured or imported regulated consumer product belongs;
- (c) the brand and full name of the regulated consumer product;
- (d) the volume or weight in which the regulated consumer product is sold; and
- (e) the total volume or weight, excluding packaging and container, of the regulated consumer product as sold by the manufacturer or importer in Hong Kong, or used by the manufacturer or importer himself.

15. Determination of volatile organic compound content: regulated consumer products

(1) For the purposes of this Regulation, the volatile organic compound content of a regulated consumer product must be determined in accordance with the test methods specified in Part 7 of Schedule 3.

(2) The Authority may permit to be adopted in place of the test method referred to in subsection (1) any other method, equivalent to that test method.

PART 5

REQUIREMENT TO CONTROL VOLATILE ORGANIC
COMPOUND EMISSIONS FROM LITHOGRAPHIC
HEATSET WEB PRINTING MACHINES**16. Limits on volatile organic compound
emissions from lithographic heatset
web printing machines**

(1) On and after 1 January 2009, an owner of a lithographic heatset web printing machine shall install on the machine an emission control device with an emission limit on volatile organic compounds of no more than 100 mg Carbon/m³ on the waste gases, without dilution, at reference conditions of 0°C and 101.325 kilopascals.

(2) The owner shall ensure that the emission control device referred to in subsection (1) has been—

- (a) certified by a competent person using Method 18, “Measurement of Gaseous Organic Compound Emissions by Gas Chromatography”, as adopted by US EPA that he has complied with the requirement specified in subsection (1);
- (b) re-certified by a competent person within 24 months from the previous certification; and
- (c) designed and operated to capture and control the emission of volatile organic compounds from all printing work of the machine.

(3) The owner shall display the latest certificate certified by a competent person referred to in subsection (2) at a conspicuous place on the machine.

(4) If the owner receives a notice in writing from the Authority that the Authority is not satisfied with the result of any certification, the owner shall carry out a re-test within the period specified by the Authority in the notice.

(5) In this section, “competent person” (合資格人士) means a registered professional engineer in the building services, gas, chemical, environmental, marine and naval architecture or mechanical discipline under the Engineers Registration Ordinance (Cap. 409).

PART 6

OFFENCES, DEFENCES AND RELATED MATTERS:
ALL REGULATED PRODUCTS**17. Offences and penalties**

(1) A person who contravenes section 3(1), (2) or (3) commits an offence and is liable to a fine of \$200,000 and to imprisonment for 6 months.

(2) A person who fails to comply with section 4 commits an offence and is liable to a fine at level 6 and to imprisonment for 3 months.

(3) A person who fails to comply with section 6 commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(4) A person who fails to comply with section 7 commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(5) A person who fails to comply with section 8 commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(6) A person who contravenes section 10(1) or (2) commits an offence and is liable to a fine of \$200,000 and to imprisonment for 6 months.

(7) A person who fails to comply with section 11 commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(8) A person who contravenes section 13(1), (2) or (3) commits an offence and is liable to a fine of \$200,000 and to imprisonment for 6 months.

(9) A person who fails to comply with section 14 commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(10) A person who fails to comply with section 16(1), (2) or (4) commits an offence and is liable to a fine of \$200,000 and to imprisonment for 6 months.

(11) A person who fails to comply with section 16(3) commits an offence and is liable to a fine at level 5.

(12) A person who fails to comply with section 22(1) or (2) commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(13) A person who without reasonable excuse fails to comply with a requirement under section 22(3) commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

(14) A person who, for any purpose of this Regulation knowingly or recklessly, displays, gives, reports or records any information that is misleading, false or incomplete in a material particular, commits an offence and is liable to a fine at level 5 and to imprisonment for 3 months.

18. Defences

(1) In any proceedings against a person for an offence under this Regulation, it is a defence for that person to prove that he took all reasonable steps and exercised all due diligence to avoid committing the offence.

(2) Where in any proceedings, the defence under subsection (1) involves an allegation that the commission of the offence was due—

(a) to the act or default of another person; or

(b) to reliance on information given by another,

the person charged is not, without the leave of the court, entitled to rely on the defence unless he has served a notice in accordance with subsection (3).

(3) A notice for the purposes of subsection (2) must—

(a) give information that is in the possession of the person serving the notice at the time he serves the notice, identifying or assisting in the identification of the person who committed the act or default or gave the information referred to in subsection (2)(b); and

(b) be served on the person bringing the proceedings at least 7 clear working days before the hearing of the proceedings.

(4) A person is not entitled to rely on the defence under subsection (2)(b) by reason of his reliance on information given by another person, unless he shows that it was reasonable in all the circumstances for him to have relied on the information, having regard in particular—

(a) to the steps which he had taken, and those which might reasonably have been taken, for the purpose of verifying the information; and

(b) to whether he had any reason to disbelieve the information.

19. Presumptions: date of manufacture or importation of regulated products; regulated products not in transit etc.

(1) In a prosecution for an offence under section 17 for the contravention of a prohibition under section 3, 10 or 13 or non-compliance with a requirement under section 4, 6 or 7, a regulated product that is proved to have been manufactured or imported by a person is presumed, in the absence of evidence to the contrary, to be a regulated product manufactured or imported by that person on or after the relevant date.

(2) In a prosecution for an offence under this Regulation, a regulated product that is found in Hong Kong is presumed, in the absence of evidence to the contrary, to be a regulated product that is not—

(a) goods in transit;

(b) goods in the course of transshipment; or

- (c) goods that are solely for export or re-export.
- (3) In subsection (1), “relevant date” (有關日期), in relation to a regulated product, means—
- (a) in the case of a prohibition, the date with effect from which the manufacture or importation of the regulated product having a volatile organic compound content in excess of the prescribed limit for that product is prohibited; and
 - (b) in the case of a requirement, the date with effect from which the relevant requirement has to be complied with.

PART 7

GENERAL PROVISIONS: ALL REGULATED PRODUCTS

20. Regulation does not apply to goods in transit etc.

This Regulation does not apply to a regulated product that is in transit, or in the course of transshipment or a regulated product that is solely for export or re-export.

21. Exemption by the Authority

- (1) The Authority may exempt in writing any regulated product from all or any of the provisions of this Regulation if he considers that—
- (a) the regulated product is irreplaceable in serving a vital public health or security function;
 - (b) the exemption would be in the public interest; or
 - (c) the regulated product is manufactured or imported as a trade sample and is not intended for sale in Hong Kong.
- (2) The Authority may impose any conditions on an exemption under subsection (1).

22. Requirement to keep records etc.

- (1) A manufacturer or an importer of a regulated product shall keep records and documents containing the particulars of the regulated product manufactured or imported by him.
- (2) The manufacturer or importer of a regulated product shall retain any record or document kept under subsection (1) for a period of not less than 3 years after it is made.
- (3) The Authority may require the manufacturer or importer to produce any record or document kept by him under this section for inspection.

SCHEDULE 1

[ss. 2, 3, 4, 5,
6, 7, 8 & 9]

REGULATED PAINTS

PART 1

DEFINITIONS

In this Schedule, unless the context otherwise requires—

- “aluminium roof coatings” (屋頂銀漆) means roof coatings containing at least 84 grams of elemental aluminium pigment per litre of coating when in a ready to use condition;
- “appurtenances” (附屬物) means accessories to a stationary structure, including but not limited to hand railings, cabinets, bathroom and kitchen fixtures, fences, rain-gutters and down-spouts, window screens, lamp-posts, heating and air conditioning equipment, other mechanical equipment, large fixed stationary tools, signs, motion picture and television production sets, and concrete forms;
- “architectural coatings” (建築塗料) means any coatings that are applied to stationary structures and their appurtenances, to pavements or to kerbs;
- “below-ground wood preservatives” (地下木料防腐劑) means wood preservatives that are formulated for architectural use to protect below-ground wood;
- “bituminous coating materials” (瀝青塗料物料) means black or brownish coating materials, soluble in carbon disulphide, consisting mainly of hydrocarbons and are obtained from natural deposits, or as residues from the distillation of crude petroleum oils or of low grades of coal;
- “bond breakers” (黏合分隔材料) means coatings that are formulated for or applied between layers of concrete to prevent the freshly poured top layer of concrete from bonding to the substrate over which it is poured;
- “clear brushing lacquers” (透明手髹漆) means clear wood finishes that—
- (a) are formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid protective film; and
 - (b) are intended exclusively for application by brush, but does not include clear lacquer sanding sealers;
- “clear wood finishes” (透明木面塗料) means clear and semi-transparent architectural coatings, including lacquers and varnishes, that are applied to wood substrates to provide a transparent or translucent solid film;
- “concrete-curing compounds” (混凝土養護混合料) means coatings that are formulated for or applied to freshly poured concrete to retard the evaporation of water;

“dry-fog coatings” (乾霧塗料) means architectural coatings that are formulated only for spray application so that when sprayed, overspray droplets dry before falling on floors and other surfaces;

“exempt compound” (豁免化合物) means any of the following compounds—

- (a) acetone;
- (b) 1-chloro-1,1-difluoroethane (HCFC-142b);
- (c) chlorodifluoromethane (HCFC-22);
- (d) 1-chloro-1-fluoroethane (HCFC-151a);
- (e) chlorofluoromethane (HCFC-31);
- (f) chloropentafluoroethane (CFC-115);
- (g) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
- (h) cyclic, branched, or linear, completely fluorinated alkanes;
- (i) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (j) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;
- (k) cyclic, branched, or linear, completely methylated siloxanes (VMS);
- (l) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee);
- (m) dichlorodifluoromethane (CFC-12);
- (n) 1,1-dichloro-1-fluoroethane (HCFC-141b);
- (o) 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
- (p) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
- (q) 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
- (r) 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123);
- (s) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
- (t) 1,1-difluoroethane (HFC-152a);
- (u) difluoromethane (HFC-32);
- (v) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OCH₃);
- (w) ethane;
- (x) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OC₂H₅);
- (y) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅);
- (z) ethylfluoride (HFC-161);
- (za) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
- (zb) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
- (zc) methyl acetate;
- (zd) methylene chloride (dichloromethane);
- (ze) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C₄F₉OCH₃);
- (zf) parachlorobenzotrifluoride (PCBTF);
- (zg) 1,1,1,3,3-pentafluorobutane (HFC-365mfc);
- (zh) pentafluoroethane (HFC-125);

- (zi) 1,1,2,2,3-pentafluoropropane (HFC-245ca);
- (zj) 1,1,2,3,3-pentafluoropropane (HFC-245ea);
- (zk) 1,1,1,2,3-pentafluoropropane (HFC-245eb);
- (zl) 1,1,1,3,3-pentafluoropropane (HFC-245fa);
- (zm) perchloroethylene (tetrachloroethylene);
- (zn) sulphur-containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine;
- (zo) 1,1,2,2-tetrafluoroethane (HFC-134);
- (zp) 1,1,1,2-tetrafluoroethane (HFC-134a);
- (zq) 1,1,1-trichloroethane (methyl chloroform);
- (zr) trichlorofluoromethane (CFC-11);
- (zs) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
- (zt) 1,1,1-trifluoroethane (HFC-143a);
- (zu) trifluoromethane (HFC-23);

“extreme high-gloss coatings for metal” (極高光金屬塗料) means architectural coatings for metal parts and products that, when tested by ASTM D523, show a reflectance of 75 or more on a 60-degree meter;

“fire-proofing exterior coatings” (防燃外部塗料) means opaque architectural coatings that are formulated to protect the structural integrity of outdoor steel and other outdoor construction materials and listed by the Underwriters Laboratories Inc. of the United States for the fire protection of steel;

“fire-retardant coatings” (阻燃塗料) means architectural coatings that are labelled and formulated to retard ignition and flame spread;

“flat coatings” (啞面塗料) means architectural coatings that register a gloss of less than 15 on a 85-degree meter or less than 5 on a 60-degree meter;

“floor coatings” (地台塗料) means opaque coatings that are formulated for or applied to flooring, including but not limited to decks, porches, gymnasiums and bowling alleys, but do not include industrial maintenance coatings;

“granite look-alike coatings or textured undercoaters” (仿石塗料或浮雕底漆) means granite look-alike, ceramic look-alike or mosaic look-alike lithic paints and textured undercoaters;

“graphic arts (sign) coatings” (印藝(標誌)塗料) means coatings that are formulated for hand-application by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colours, copy blockers and bulletin enamels;

“high-temperature industrial maintenance coatings” (耐高溫工業保養塗料) means industrial maintenance coatings that are formulated for or applied to substrates exposed continuously or intermittently to temperatures above 204°C;

“industrial maintenance coatings” (工業保養塗料) means architectural coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, that are formulated for or applied to substrates (including floors) that are exposed to one or more of the following extreme environmental conditions—

- (a) immersion in water, waste water, or chemical solutions (aqueous and non-aqueous solutions) or chronic exposure of interior surfaces to moisture condensation;
- (b) acute or chronic exposure to corrosive, caustic or acidic agents, or similar chemicals, chemical fumes, chemical mixtures or solutions;
- (c) repeated exposure to temperatures in excess of 121°C;
- (d) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners or scouring agents; or
- (e) exterior exposure of metal structures;

“interior stains” (室內索色劑) means stains that are labelled and formulated exclusively for use on interior surfaces;

“Japans or faux finishing coatings” (仿藝漆) means glazes that are designed for wet-in-wet techniques and used as a stain or glaze to create artistic effects, including but not limited to dirt, old age, smoke damage and simulated marble and wood grain;

“lacquers” (清漆) means clear or pigmented wood finishes, including clear lacquer sanding sealers, that are formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction;

“low-solids coatings” (低固含量塗料) means architectural coatings containing 0.12 kg or less of solids per litre of material;

“magnesite cement coatings” (菱鎂土水泥塗料) means coatings that are formulated for or applied to magnesite cement decking to protect the magnesite cement substrate from erosion by water;

“mastic coatings” (膠脂塗料) means architectural coatings that are formulated to cover holes and minor cracks and to conceal surface irregularities, and applied to a thickness of at least 0.25 mm (dry, single coat);

“metallic pigmented coatings” (金屬顏料塗料) means architectural coatings in a ready to use condition, excluding roof coatings, containing at least 48 grams per litre of coating, of elemental metallic pigment (excluding zinc), mica particles or any combination of metallic pigments and mica particles;

“Method 24” (方法 24) means Method 24, “Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”, as adopted by US EPA;

“Method 303” (方法 303) means Method 303, “Determination of Exempt Compounds”, as adopted by the South Coast Air Quality Management District of California, United States;

- “multi-colour coatings” (多彩漆) means architectural coatings that exhibit more than one colour when applied and are packaged in a single container and applied in a single coat;
- “non-flat coatings” (非啞面塗料) means architectural coatings that register a gloss of 5 or greater on a 60-degree meter and a gloss of 15 or greater on a 85-degree meter;
- “other architectural coatings” (其他建築塗料) means any architectural coatings not otherwise listed in this Schedule;
- “post-consumer coatings” (用後塗料) means finished coatings that would have been disposed of as waste, having completed their usefulness to a consumer, and do not include manufacturing wastes;
- “pre-treatment coatings for metal” (預處理金屬塗料) means architectural coatings that contain no more than 12% solids by weight, and at least 0.5% acid by weight, are used to provide surface etching, and are applied directly to metal surfaces to provide corrosion resistance, adhesion and ease of stripping;
- “pre-treatment wash primers” (預處理蝕洗底漆) means architectural coatings that contain a minimum of 0.5% acid by weight, applied directly to bare metal surfaces to provide necessary surface etching;
- “primers” (底漆) means architectural coatings that are applied to a surface to provide a firm bond between the substrate and subsequent coats;
- “quick-dry enamels” (快乾磁漆) means non-flat coatings that—
- (a) are capable of being applied directly from the container by brush or roller under normal conditions (the normal conditions being ambient temperatures between 16°C and 27°C);
 - (b) when tested by ASTM D1640, are set-to-touch in 2 hours or less, dry-hard in 8 hours or less and tack-free in 4 hours or less by the mechanical test method; and
 - (c) have a dried film gloss of 70 or greater on a 60-degree meter;
- “quick-dry primers, sealers and undercoaters” (快乾底漆、封固底劑及中層底漆) means primers, sealers and undercoaters that are intended to be applied to a surface to provide a firm bond between the substrate and subsequent coats and that are dry-to-touch in half an hour and can be recoated in 2 hours (ASTM D1640);
- “recycled coatings” (再造塗料) means architectural coatings that are formulated such that 50% or more of the total weight consists of secondary and post-consumer coatings and 10% or more of the total weight consists of post-consumer coatings;
- “roof coatings” (屋頂塗料) means coatings that are formulated for application to roofs for the primary purpose of preventing penetration of the substrate by water or reflecting heat and ultraviolet radiation;

- “roof primers (bituminous)” (屋頂底漆 (瀝青)) means primers that are formulated for or applied to roofing that incorporates bituminous coating materials;
- “rust preventative coatings” (防銹塗料) means architectural coatings that are formulated for use in preventing the corrosion of metal surfaces in residential and commercial situations;
- “sanding sealers” (摻砂封固底劑) means clear wood architectural coatings that are formulated for or applied to bare wood for sanding and to seal the wood for subsequent application of coatings;
- “sealers” (封固底劑) means architectural coatings that are applied to either block materials from penetrating into or leaching out of a substrate, to prevent subsequent coatings from being absorbed by the substrate or to prevent harm to subsequent coatings by materials in the substrate;
- “shellacs” (蟲膠) means clear or pigmented architectural coatings that are formulated solely with the resinous secretions of the lac beetle (*laccifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction;
- “specialty primers” (專業底漆) means architectural coatings that are formulated for or applied to a substrate to seal fire, smoke or water damage, or to condition excessively chalky surfaces that have chalk rating of 4 or less as determined by the ASTM D4214—Photographic Reference Standard No. 1;
- “stains” (索色劑) means opaque or semi-transparent architectural coatings that are formulated to change the colour but not conceal the grain pattern or texture;
- “superior durability solvent-borne coatings for metal” (極耐用油性金屬塗料) means solvent-borne architectural coatings for metal with—
- (a) a minimum of 10 years’ durability;
 - (b) no less than 500 hours weather resistance as determined by ASTM G154; and
 - (c) protection against corrosion in an acidic or alkaline environment;
- “swimming pool coatings” (游泳池塗料) means coatings that are specifically formulated for or applied to the interior of swimming pools and to resist swimming pool chemicals;
- “swimming pool repair coatings” (游泳池維修塗料) means chlorinated and rubber-based coatings that are used for the repair and maintenance of swimming pools over existing chlorinated and rubber-based coatings;
- “traffic coatings” (道路塗料) means coatings that are formulated for or applied to public streets, highways and other surfaces, including but not limited to kerbs, berms, driveways and parking lots;
- “undercoaters” (中層底漆) means architectural coatings that are formulated for or applied to substrates to provide a smooth surface for subsequent coats;

- “varnishes” (光油) means clear wood finishes that are formulated with various resins to dry by chemical reaction;
- “volatile organic compound” (揮發性有機化合物) means any volatile compound of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and exempt compounds;
- “waterproofing concrete or masonry sealers” (防水混凝土或磚石封固底劑) means clear or pigmented sealers that are formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light and staining;
- “waterproofing sealers” (防水封固底劑) means architectural coatings that are formulated for the primary purpose of preventing penetration of porous substrates by water;
- “wood preservatives” (木料防腐劑) means architectural coatings that are formulated to protect wood from decay or insect attack by the addition of a wood preservative chemical;
- “zinc-rich industrial maintenance primers” (富鋅工業保養底漆) means primers that are formulated to contain a minimum of 65% metallic zinc powder (zinc dust) by weight of total solids for application to metal substrates.

PART 2

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED PAINTS TO WHICH SECTION 3(1) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as grams of volatile organic compounds per litre of coating and as determined under section 1 of Part 5, are specified for the following regulated paints when in a ready to use condition—

Item	Regulated paints	Maximum limits of volatile organic compound content
1.	Aluminium roof coatings	250
2.	Below-ground wood preservatives	350
3.	Bond breakers	350
4.	Clear brushing lacquers	650
5.	Clear wood finishes (sanding sealers)	150
6.	Concrete-curing compounds	350

Item	Regulated paints	Maximum limits of volatile organic compound content
7.	Dry-fog coatings	400
8.	Fire-proofing exterior coatings	350
9.	Graphic arts (sign) coatings	500
10.	Interior stains	250
11.	Magnesite cement coatings	450
12.	Mastic coatings	300
13.	Other architectural coatings	250
14.	Pigmented lacquers	275
15.	Recycled coatings	250
16.	Roof coatings (exposed)	50
17.	Roof coatings (non-exposed)	250
18.	Shellacs (clear)	730
19.	Shellacs (pigmented)	550
20.	Specialty primers	350
21.	Stains	100
22.	Swimming pool repair coatings	340
23.	Swimming pool coatings (other)	340
24.	Waterproofing concrete or masonry sealers	400
25.	Wood preservatives (other)	350

PART 3

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED PAINTS TO WHICH SECTION 3(2) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as grams of volatile organic compounds per litre of coating and as determined under section 1 of Part 5, are specified for the following regulated paints when in a ready to use condition—

Item	Regulated paints	Maximum limits of volatile organic compound content
1.	Fire-retardant coatings (clear)	650
2.	Flat coatings	50
3.	Granite look-alike coatings or textured undercoaters	100
4.	Japans or faux finishing coatings	350
5.	Multi-colour coatings	250
6.	Non-flat coatings	150
7.	Roof primers (bituminous)	350

PART 4

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED PAINTS TO WHICH SECTION 3(3) OF THIS REGULATION APPLIES

1. The following maximum limits of volatile organic compound content, expressed as grams of volatile organic compounds per litre of coating and as determined under section 1 of Part 5, are specified for the following regulated paints when in a ready to use condition—

Item	Regulated paints	Maximum limits of volatile organic compound content
1.	Clear wood finishes (lacquers)	550
2.	Clear wood finishes (varnishes)	150
3.	Extreme high-gloss coatings for metal	420
4.	Fire-retardant coatings (pigmented)	350
5.	Floor coatings	250
6.	High-temperature industrial maintenance coatings	420
7.	Industrial maintenance coatings	250
8.	Metallic pigmented coatings	500
9.	Pre-treatment coatings for metal	420

Item	Regulated paints	Maximum limits of volatile organic compound content
10.	Pre-treatment wash primers	420
11.	Primers, sealers and undercoaters	200
12.	Quick-dry enamels	250
13.	Quick-dry primers, sealers and undercoaters	200
14.	Rust preventative coatings	400
15.	Superior durability solvent-borne coatings for metal	420
16.	Traffic coatings	150
17.	Waterproofing sealers	250
18.	Zinc-rich industrial maintenance primers	250

2. The following maximum limit of volatile organic compound content, expressed as grams of volatile organic compounds per litre of material and as determined under section 2 of Part 5 is specified for the following regulated paint when in a ready to use condition—

Item	Regulated paint	Maximum limit of volatile organic compound content
1.	Low-solids coatings	120

PART 5

METHOD OF CALCULATING THE VOLATILE ORGANIC COMPOUND CONTENT OF REGULATED PAINTS

1. With the exception of low-solids coatings, the volatile organic compound content of regulated paints in a ready to use condition shall be calculated by the following formula—

$$\frac{W_a - W_b - W_c - W_d}{V_e - V_f - V_g}$$

where—

W_a represents the weight of volatile compounds in grams as determined by Method 24;

W_b represents the weight of water in grams as determined by Method 24;

W_c represents the weight of exempt compounds in grams as determined by Method 303;

W_d represents the weight of volatile organic compounds in grams of any colourant added to tint base per litre of material, as provided by the paint manufacturer or importer;

V_e represents the volume of material in litres as determined by Method 24;

V_f represents the volume of water in litres as determined by Method 24;

V_g represents the volume of exempt compounds in litres as determined by Method 303.

2. For low-solids coatings in a ready to use condition, the volatile organic compound content shall be calculated by the following formula—

$$\frac{W_a - W_b - W_c - W_d}{V_e}$$

where—

W_a represents the weight of volatile compounds in grams as determined by Method 24;

W_b represents the weight of water in grams as determined by Method 24;

W_c represents the weight of exempt compounds in grams as determined by Method 303;

W_d represents the weight of volatile organic compounds in grams of any colourant added to tint base per litre of material, as provided by the paint manufacturer or importer;

V_e represents the volume of the material in litres as determined by Method 24.

SCHEDULE 2

[ss. 2, 10, 11
& 12]

REGULATED PRINTING INKS

PART 1

DEFINITIONS

In this Schedule, unless the context otherwise requires—
“exempt compound” (豁免化合物) means any of the following compounds—

- (a) acetone;
- (b) 1-chloro-1,1-difluoroethane (HCFC-142b);
- (c) chlorodifluoromethane (HCFC-22);
- (d) 1-chloro-1-fluoroethane (HCFC-151a);
- (e) chlorofluoromethane (HCFC-31);
- (f) chloropentafluoroethane (CFC-115);
- (g) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
- (h) cyclic, branched, or linear, completely fluorinated alkanes;
- (i) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (j) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;
- (k) cyclic, branched, or linear, completely methylated siloxanes (VMS);
- (l) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee);
- (m) dichlorodifluoromethane (CFC-12);
- (n) 1,1-dichloro-1-fluoroethane (HCFC-141b);
- (o) 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
- (p) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
- (q) 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
- (r) 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123);
- (s) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
- (t) 1,1-difluoroethane (HFC-152a);
- (u) difluoromethane (HFC-32);
- (v) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OCH₃);
- (w) ethane;
- (x) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OC₂H₅);
- (y) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅);
- (z) ethylfluoride (HFC-161);

- (za) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
- (zb) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
- (zc) methyl acetate;
- (zd) methylene chloride (dichloromethane);
- (ze) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C₄F₉OCH₃);
- (zf) parachlorobenzotrifluoride (PCBTF);
- (zg) 1,1,1,3,3-pentafluorobutane (HFC-365mfc);
- (zh) pentafluoroethane (HFC-125);
- (zi) 1,1,2,2,3-pentafluoropropane (HFC-245ca);
- (zj) 1,1,2,3,3-pentafluoropropane (HFC-245ea);
- (zk) 1,1,1,2,3-pentafluoropropane (HFC-245eb);
- (zl) 1,1,1,3,3-pentafluoropropane (HFC-245fa);
- (zm) perchloroethylene (tetrachloroethylene);
- (zn) sulphur-containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine;
- (zo) 1,1,2,2-tetrafluoroethane (HFC-134);
- (zp) 1,1,1,2-tetrafluoroethane (HFC-134a);
- (zq) 1,1,1-trichloroethane (methyl chloroform);
- (zr) trichlorofluoromethane (CFC-11);
- (zs) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
- (zt) 1,1,1-trifluoroethane (HFC-143a);
- (zu) trifluoromethane (HFC-23);

“flexographic ink” (柔性版印墨) means an ink used in flexographic printing, which is a printing method utilizing a flexible rubber or other elastomeric plate in which the image area is raised relative to the non-image area;

“fluorescent ink” (螢光印墨) means an ink that emits electromagnetic radiation as a result of the absorption of energy from radiation;

“gravure ink” (凹版印墨) means an ink used in gravure printing, which is an intaglio printing process in which the ink is carried in minute etched or engraved wells on a roll or cylinder, excess ink being removed from the surface by a doctor blade;

“heatset ink” (熱固印墨) means an ink—

- (a) used on continuous web-feed printing presses that are equipped with dryers or ovens; and
- (b) dries or sets by heat induced evaporation of the ink oils and subsequent chilling of the ink by chill rolls;

“letterpress ink” (凸版印墨) means an ink used in letterpress printing, which is a printing process in which the image area is raised relative to the non-image area and the ink is transferred to the substrate directly from the image surface;

“lithographic ink” (平版印墨) means an ink used in lithographic printing, which is a planographic printing process in which the image and non-image areas are on the same plane and are chemically differentiated;

- “Method 24” (方法 24) means Method 24, “Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”, as adopted by US EPA;
- “Method 24A” (方法 24A) means Method 24A, “Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings”, as adopted by US EPA;
- “Method 303” (方法 303) means Method 303, “Determination of Exempt Compounds”, as adopted by the South Coast Air Quality Management District of California, United States;
- “non-porous substrate” (不透氣承印物) means a substrate whose surface prevents penetration by water, including but not limited to foil, polyethylene, polypropylene, cellophane, paper or paperboard coated with a non-porous material, metalized polyester, nylon and mylar;
- “porous substrate” (透氣承印物) means a substrate whose surface does not prevent the penetration by water, including but not limited to paper, paperboard and any paper product that is coated with a porous material;
- “printing ink” (印刷印墨) means a pigmented fluid or viscous material used in printing;
- “screen printing ink” (絲網印刷印墨) means an ink used in screen printing, which is a printing process in which the ink is passed through a taut web or fabric to which a refined form of stencil has been applied;
- “volatile organic compound” (揮發性有機化合物) means any volatile compound of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and exempt compounds.

PART 2

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED PRINTING INKS TO WHICH SECTION 10(1) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as grams of volatile organic compound per litre of printing ink and as determined under section 1 of Part 4, are specified for the following regulated printing inks when in a ready to use condition—

Item	Regulated printing inks	Maximum limits of volatile organic compound content
1.	Flexographic fluorescent ink	300
2.	Flexographic ink non-porous substrate	300

Item	Regulated printing inks	Maximum limits of volatile organic compound content
3.	Flexographic ink porous substrate	225
4.	Letterpress ink	300
5.	Lithographic ink (except heatset ink)	300

PART 3

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED PRINTING INKS TO WHICH SECTION 10(2) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as grams of volatile organic compounds per litre of printing ink and as determined under Part 4, are specified for the following regulated printing inks when in a ready to use condition—

Item	Regulated printing inks	Maximum limits of volatile organic compound content
1.	Gravure ink	300
2.	Screen printing ink	400

PART 4

METHOD OF CALCULATING THE VOLATILE ORGANIC COMPOUND CONTENT OF REGULATED PRINTING INKS

1. With the exception of gravure inks, the volatile organic compound content of all regulated printing inks in a ready to use condition shall be calculated by the following formula—

$$\frac{W_a - W_b - W_c}{V_d - V_e - V_f}$$

where—

W_a represents the weight of volatile compounds in grams as determined by Method 24;

W_b represents the weight of water in grams as determined by Method 24;

- Wc represents the weight of exempt compounds in grams as determined by Method 303;
- Vd represents the volume of material in litres as determined by Method 24;
- Ve represents the volume of water in litres as determined by Method 24;
- Vf represents the volume of exempt compounds in litres as determined by Method 303.

2. The volatile organic compound content of all gravure inks in a ready to use condition shall be calculated by the following formula—

$$\frac{W_a - W_b - W_c}{V_d - V_e - V_f}$$

where—

- Wa represents the weight of volatile compounds in grams as determined by Method 24A;
- Wb represents the weight of water in grams as determined by Method 24A;
- Wc represents the weight of exempt compounds in grams as determined by Method 303;
- Vd represents the volume of material in litres as determined by Method 24A;
- Ve represents the volume of water in litres as determined by Method 24A;
- Vf represents the volume of exempt compounds in litres as determined by Method 303.

SCHEDULE 3

[ss. 2, 13, 14
& 15]

REGULATED CONSUMER PRODUCTS

PART 1

DEFINITIONS

In this Schedule, unless the context otherwise requires—

- “aerosol product” (噴霧產品) means a pressurized spray system that dispenses product ingredients by means of a propellant contained in a product or a product’s container, or by means of a mechanically induced force, but does not include pump spray;
- “agricultural use” (農業用途) means the use of any pesticide or method or device for the control of pests in connection with the commercial production, storage or processing of any animal or plant crop, but does not include the sale or use of pesticides in properly labelled packages or containers that are intended for home use, industrial use or institutional use;
- “air freshener” (空氣清新劑) means any consumer product, including but not limited to sprays, wicks, powders and crystals designed for the purpose of masking odours, or freshening, cleaning, scenting or deodorizing the air and includes dual purpose aerosol air freshener and disinfectant products, but does not include—
- (a) products that are used on the human body;
 - (b) products that function primarily as cleaning products as indicated on a product label; or
 - (c) toilet or urinal care products;
- “chemical compound” (化學化合物) means a molecule of definite chemical formula and isomeric structure;
- “chemical mixture” (化學混合物) means a substance comprising 2 or more chemical compounds;
- “crawling bug insecticide” (除爬行蟲劑) means any insecticide product that is designed for use against ants, cockroaches or other household crawling arthropods, including but not limited to mites, silverfish or spiders, but does not include products that are designed to be used exclusively on humans or animals or any house dust mite product;
- “device” (器具) means any instrument that is designed for trapping, destroying, repelling, or mitigating any pest or any other form of plant or animal life, but does not include equipment that is used for the application of pesticides when sold separately from the pesticide;
- “double phase aerosol air freshener” (雙段式噴霧空氣清新劑) means an aerosol air freshener with the liquid contents in 2 or more distinct phases that requires the product container to be shaken before use to mix the phases producing an emulsion;
- “dual purpose aerosol air freshener and disinfectant” (雙用途噴霧空氣清新劑及消毒劑) means an aerosol product that is represented on the product container for use as both an air freshener and a disinfectant, or is so represented on any sticker, label, packaging or literature attached to the product container;
- “finish” or “finishing” (定型) means the maintaining or holding of previously styled hair for a period of time;

“flea and tick insecticide” (除蚤虱劑) means any insecticide product that is designed for use against fleas, ticks, their larvae, or their eggs, but does not include any products that are designed to be used exclusively on humans or animals and their bedding;

“floor wax stripper” (地蠟清除劑) means any product that is designed to remove natural or synthetic floor polishes or waxes through breakdown of the polish or wax polymers, or by dissolving or emulsifying the polish or wax, but does not include aerosol floor wax strippers or products that are designed to remove floor wax solely through abrasion;

“flying bug insecticide” (除飛蟲劑) means any insecticide product that is designed for use against flying insects or other flying arthropods, including but not limited to flies, mosquitoes, moths or gnats, but does not include any products that are designed to be used exclusively on humans or animals or any moth-proofing product;

“fragrance” (香料) means a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapour pressure not in excess of 2 mm of Hg at 20°C, the sole purpose of which is to impart an odour or scent or to counteract a malodour;

“gel” (凝膠) means a colloid in which the disperse phase has combined with the continuous phase to produce a semi-solid material, such as jelly;

“hairspray” (噴髮膠), in relation to a product manufactured in Hong Kong or imported into Hong Kong—

- (a) on or before 31 December 2008, means a product that—
 - (i) is designed primarily for the purpose of dispensing droplets of a resin on and into a hair coiffure; and
 - (ii) will impart sufficient rigidity to the coiffure to establish or retain the style for a period of time; and
- (b) after 31 December 2008, means a product that is—
 - (i) applied to styled hair; and
 - (ii) designed or labelled to provide sufficient rigidity, and to hold, retain or finish the style of the hair for a period of time,

and includes aerosol hairsprays, pump hairsprays, spray waxes, colour, glitter, or sparkle hairsprays that make finishing claims and products that are both styling and finishing products, but does not include spray products that are intended to aid in styling but does not provide finishing of a hairstyle;

“home use” (家居用途) means use in a household or its immediate environment;

“house dust mite” (家居塵蟎) means mites that feed primarily on skin cells shed in the home by humans and pets;

“house dust mite product” (家居塵蟎產品) means a product whose label, packaging or accompanying literature states that the product is suitable for use against house dust mites, but does not indicate that the product is suitable for use against ants, cockroaches or other household crawling arthropods;

“industrial use” (工業用途) means use for or in a manufacturing, mining or chemical process, or use in the operation of factories, processing plants and similar sites;

“insecticide” (除蟲劑) means any pesticide product that is designed for use against insects or other arthropods, but excluding products that are—

- (a) for agricultural use;
- (b) for industrial use; or
- (c) for institutional use;

“insecticide fogger” (除蟲劑噴霧器) means any insecticide product that is designed to release all or most of its content, as a fog or mist, into indoor areas during a single application;

“insect repellent” (驅蟲劑) means any pesticide product that is designed to be applied on human skin, hair or attire worn on humans in order to prevent contact with or repel biting insects or arthropods;

“institutional use” (機構用途) means use within the lines of or on property necessary for the operation of buildings such as hospitals, schools, libraries, auditoriums and office complexes;

“lawn and garden insecticide” (草地及花園除蟲劑) means any insecticide product that is labelled primarily to be used in household lawn and garden areas to protect plants from insects or other arthropods;

“liquid” (液體) means a substance or mixture of substances that is capable of a visually detectable flow, but does not include powders or other materials that are composed entirely of solid particles;

“lubricant” (潤滑劑) means a product that is designed to reduce friction, heat, noise, or wear between moving parts, or to loosen rusted or immovable parts or mechanisms, but does not include—

- (a) automotive power steering fluids;
- (b) products for use inside power generating motors, engines and turbines, and their associated power-transfer gearboxes;
- (c) 2-cycle oils or other products designed to be added to fuels;
- (d) products for use on human body or animals; or
- (e) products that are—
 - (i) sold exclusively to an establishment that manufactures or constructs goods or commodities; and
 - (ii) labelled “not for retail sale”;

“LVP-VOC” (低汽壓揮發性有機化合物) means a low vapour pressure volatile organic compound, which is a chemical compound or chemical mixture containing at least one carbon atom and meeting one of the following criteria—

- (a) has a vapour pressure less than 0.1 mm Hg at 20°C;
- (b) is a chemical compound with more than 12 carbon atoms, or a chemical mixture consisting solely of chemical compounds with more than 12 carbon atoms as verified by formulation data and the vapour pressure and boiling point of which are unknown;
- (c) is a chemical compound with a boiling point greater than 216°C; or
- (d) is the percent by weight of a chemical mixture that boils above 216°C;

“Method 18” (方法 18) means Method 18, “Measurement of Gaseous Organic Compound Emissions by Gas Chromatography”, as adopted by US EPA;

“Method 24” (方法 24) means Method 24, “Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”, as adopted by US EPA;

“Method 24A” (方法 24A) means Method 24A, “Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings”, as adopted by US EPA;

“Method 300.7” (方法 300.7) means Method 300.7, “Dissolved Sodium, Ammonium, Potassium, and Calcium in Wet Deposition by Chemically Suppressed Ion Chromatography”, as adopted by US EPA;

“Method 310” (方法 310) means Method 310, “Determination of Volatile Organic Compounds in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products”, as adopted by the Air Resources Board of California, United States;

“Method 1400” (方法 1400) means Method 1400, “Alcohol I, Analysis of Acetone and Ethanol by Gas Chromatography, NIOSH Manual of Analytical Methods, Volume 1”, as adopted by NIOSH;

“Method 8260B” (方法 8260B) means Method 8260B, “Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Test Methods for Evaluating Solid Waste, Volume 1B, Chapter 4, Section 4.3.2; Laboratory Manual Physical/Chemical Methods, SW-846”, as adopted by US EPA;

“moth-proofing product” (防蛀蟲產品) means a product whose label, packaging or accompanying literature indicates that the product is designed to protect fabrics from damage by moths, but does not indicate that the product is suitable for use against flying insects or other flying arthropods;

“multi-purpose dry lubricant” (多用途乾性潤滑劑) means any lubricant that is—

- (a) designed and labelled to provide lubricity by depositing a thin film of graphite, molybdenum disulphide (“moly”), or polytetrafluoroethylene or closely related fluoropolymer (“teflon”) on surfaces; and
- (b) designed and labelled for general purpose lubrication, or for use in a wide variety of applications;

“multi-purpose lubricant” (多用途潤滑劑) means any lubricant that is designed for general purpose lubrication, or for use in a wide variety of applications, but does not include multi-purpose dry lubricant, penetrant or silicone-based multi-purpose lubricant;

“penetrant” (滲透劑) means a lubricant that is designed and labelled primarily to loosen metal parts that have bonded together due to rusting, oxidation or other causes, but does not include multi-purpose lubricant that claims to have penetrating qualities and is not labelled primarily to loosen bonded parts;

“propellant” (推進劑) means a liquefied or compressed gas that is used in whole or in part, such as cosolvent, to expel a liquid or any other material from the same self-pressurized container or from a separate container;

“pump spray” (泵噴) means a packaging system in which the product ingredients within the container are not under pressure and in which the product is expelled only while a pumping action is applied to a button, trigger or other actuator;

“silicone-based multi-purpose lubricant” (多用途硅基潤滑劑) means any lubricant that is—

- (a) designed and labelled primarily to provide lubricity through the use of silicone compounds, including but not limited to polydimethylsiloxane; and
- (b) designed and labelled for general purpose lubrication, or for use in a wide variety of applications,

but does not include products that are designed and labelled exclusively to release manufactured products from moulds;

“single phase aerosol air freshener” (單段式噴霧空氣清新劑) means an aerosol air freshener with the liquid contents in a single homogeneous phase and which does not require the product container to be shaken before use;

“solid” (固體) means a substance or mixture of substances that, either in whole or subdivided such as the particles comprising a powder, is not capable of visually detectable flow;

“styling” (造型) means the forming, sculpting or manipulating the hair to temporarily alter the shape of the hair;

“toilet bowl, toilet tank or urinal” (馬桶、水箱或尿廁) means a toilet or urinal connected to permanent plumbing in a building and other structures, portable toilet or urinal placed at temporary or remote locations, and toilet or urinal in a vehicle, boat, ship and aircraft;

“toilet or urinal care product” (廁所或尿廁護理產品) means any product that is designed or labelled to clean or to deodorize toilet bowl, toilet tank or urinal;

“wax” (蠟) means a material or synthetic thermoplastic substance generally of high molecular weight hydrocarbons or high molecular weight esters of fatty acids or alcohols, except glycerol and high polymers (plastics).

PART 2

MAXIMUM LIMIT OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED CONSUMER PRODUCT TO WHICH SECTION 13(1) OF THIS REGULATION APPLIES

1. The following maximum limit of volatile organic compound content, expressed as percent by weight, is specified for the following regulated consumer product—

Item	Regulated consumer product	Maximum limit of volatile organic compound content
1.	Hairspray	80

2. For the purposes of section 1—

(a) “volatile organic compound” (揮發性有機化合物) means any volatile compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and exempt compounds;

(b) in calculating the volatile organic compound content of the regulated consumer product, fragrances incorporated into the product up to a combined level of 2% by weight of the product shall be excluded;

(c) “exempt compound” (豁免化合物) means any of the following compounds—

- (i) acetone;
- (ii) 1-chloro-1,1-difluoroethane (HCFC-142b);
- (iii) chlorodifluoromethane (HCFC-22);
- (iv) 1-chloro-1-fluoroethane (HCFC-151a);
- (v) chlorofluoromethane (HCFC-31);
- (vi) chloropentafluoroethane (CFC-115);
- (vii) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
- (viii) cyclic, branched, or linear, completely fluorinated alkanes;
- (ix) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

- (x) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;
- (xi) cyclic, branched, or linear, completely methylated siloxanes;
- (xii) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee);
- (xiii) dichlorodifluoromethane (CFC-12);
- (xiv) 1,1-dichloro-1-fluoroethane (HCFC-141b);
- (xv) 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
- (xvi) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
- (xvii) 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
- (xviii) 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123);
- (xix) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
- (xx) 1,1-difluoroethane (HFC-152a);
- (xxi) difluoromethane (HFC-32);
- (xxii) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OCH₃);
- (xxiii) ethane;
- (xxiv) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OC₂H₅);
- (xxv) 3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl)-hexane (HFE-7500);
- (xxvi) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅ or HFE-7200);
- (xxvii) ethylfluoride (HFC-161);
- (xxviii) 1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane (n-C₃F₇OCH₃ or HFE-7000);
- (xxix) 1,1,1,2,3,3,3-heptafluoropropane (HFC-227ea);
- (xxx) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
- (xxxi) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
- (xxxii) LVP-VOC;
- (xxxiii) methane;
- (xxxiv) methyl acetate;
- (xxxv) methyl formate (HCOOCH₃);
- (xxxvi) methylene chloride (dichloromethane);
- (xxxvii) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C₄F₉OCH₃ or HFE-7100);
- (xxxviii) parachlorobenzotrifluoride (PCBTF);
- (xxxix) 1,1,1,3,3-pentafluorobutane (HFC-365mfc);
- (xl) pentafluoroethane (HFC-125);
- (xli) 1,1,2,2,3-pentafluoropropane (HFC-245ca);

- (xlii) 1,1,2,3,3-pentafluoropropane (HFC-245ea);
- (xliii) 1,1,1,2,3-pentafluoropropane (HFC-245eb);
- (xliv) 1,1,1,3,3-pentafluoropropane (HFC-245fa);
- (xlv) perchloroethylene (tetrachloroethylene);
- (xlvi) sulphur-containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine;
- (xlvii) 1,1,2,2-tetrafluoroethane (HFC-134);
- (xlviii) 1,1,1,2-tetrafluoroethane (HFC-134a);
- (xlix) 1,1,1-trichloroethane (methyl chloroform);
 - (l) trichlorofluoromethane (CFC-11);
 - (li) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
 - (lii) 1,1,1-trifluoroethane (HFC-143a);
 - (liii) trifluoromethane (HFC-23).

PART 3

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED CONSUMER PRODUCTS TO WHICH SECTION 13(2) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as percent by weight, are specified for the following regulated consumer products—

Item	Regulated consumer products	Maximum limits of volatile organic compound content
1.	Air freshener—	
	(a) Double phase aerosol air freshener	25
	(b) Dual purpose aerosol air freshener and disinfectant	60
	(c) Single phase aerosol air freshener	30
2.	Floor wax stripper—	
	(a) For heavy build-up of polish	12
	(b) For light or medium build-up of polish	3
3.	Multi-purpose lubricant, excluding product in the form of solid or semi-solid	50

Item	Regulated consumer products	Maximum limits of volatile organic compound content
4.	Insecticide—	
	(a) Aerosol lawn and garden insecticide	20
	(b) Flea and tick insecticide	25
	(c) Insecticide fogger	45

PART 4

MAXIMUM LIMITS OF VOLATILE ORGANIC COMPOUND CONTENT FOR REGULATED CONSUMER PRODUCTS TO WHICH SECTION 13(3) OF THIS REGULATION APPLIES

The following maximum limits of volatile organic compound content, expressed as percent by weight, are specified for the following regulated consumer products—

Item	Regulated consumer products	Maximum limits of volatile organic compound content
1.	Aerosol insect repellent	65
2.	Air freshener—	
	(a) Air freshener in the form of liquid or pump spray	18
	(b) Air freshener in the form of solid or gel	3
3.	Hairspray	55
4.	Insecticide—	
	(a) Aerosol crawling bug insecticide	15
	(b) Aerosol flying bug insecticide	25

PART 5

EXCLUSIONS FROM PARTS 3 AND 4

Notwithstanding Parts 3 and 4, the limits of volatile organic compound content specified in those Parts do not apply to the following—

- (a) air freshener that, less exempt compounds, comprises entirely fragrance;
- (b) insecticide containing at least 98% paradichlorobenzene; or
- (c) bait station insecticide, which is a container enclosing an insecticidal bait that is not more than 14.2 grams by weight, where the bait is designed to be ingested by insects and is composed of solid material feeding stimulants with less than 5% by weight of active ingredients.

PART 6

GENERAL PROVISIONS FOR PARTS 3, 4 AND 5

For the purposes of Parts 3, 4 and 5—

- (a) “volatile organic compound” (揮發性有機化合物) means any volatile compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and exempt compounds;
- (b) in calculating the volatile organic compound content of the regulated consumer product, fragrances incorporated into the product up to a combined level of 2% by weight of the product shall be excluded;
- (c) “exempt compound” (豁免化合物) means any of the following compounds—
- (i) acetone;
 - (ii) 1-chloro-1,1-difluoroethane (HCFC-142b);
 - (iii) chlorodifluoromethane (HCFC-22);
 - (iv) chloropentafluoroethane (CFC-115);
 - (v) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
 - (vi) cyclic, branched, or linear, completely fluorinated alkanes;
 - (vii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
 - (viii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;
 - (ix) cyclic, branched, or linear, completely methylated siloxanes;
 - (x) dichlorodifluoromethane (CFC-12);
 - (xi) 1,1-dichloro-1-fluoroethane (HCFC-141b);
 - (xii) 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
 - (xiii) 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123);
 - (xiv) 1,1-difluoroethane (HFC-152a);
 - (xv) ethane;
 - (xvi) LVP-VOC;
 - (xvii) methane;
 - (xviii) methyl acetate;
 - (xix) methylene chloride (dichloromethane);
 - (xx) parachlorobenzotrifluoride (PCBTF);
 - (xxi) pentafluoroethane (HFC-125);
 - (xxii) perchloroethylene (tetrachloroethylene);
 - (xxiii) sulphur-containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine;
 - (xxiv) 1,1,2,2-tetrafluoroethane (HFC-134);
 - (xxv) 1,1,1,2-tetrafluoroethane (HFC-134a);
 - (xxvi) 1,1,1-trichloroethane (methyl chloroform);

- (xxvii) trichlorofluoromethane (CFC-11);
- (xxviii) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
- (xxix) 1,1,1-trifluoroethane (HFC-143a);
- (xxx) trifluoromethane (HFC-23).

PART 7

METHOD OF CALCULATING THE VOLATILE ORGANIC COMPOUND CONTENT OF REGULATED CONSUMER PRODUCTS

1. The volatile organic compound content of regulated consumer products listed in Parts 2, 3 and 4 shall be determined by Appendices A and B of Method 310 and using the equations set out in sections 2, 3 and 4 of this Part as may be applicable.
2. If the regulated consumer product is—
 - (a) an aerosol product that does not contain LVP-VOC, the volatile organic compound content shall be calculated using the following equation—

$$\text{Percent by weight of volatile organic compounds} = \frac{\text{WL}(\text{TV} - \text{A} - \text{H} - \text{EL}) + \text{WP} - \text{EP}}{\text{WL} + \text{WP}} \times 100$$

where—

- WL represents the weight of the non-propellant portion in grams, excluding packaging and container;
- TV represents the weight fraction of total volatile material in the non-propellant portion, as determined by Method 24 or Method 24A, ASTM D2369;
- A represents the weight fraction of ammonium in the non-propellant portion, as determined by ASTM D1426 or Method 300.7;
- H represents the weight fraction of water in the non-propellant portion, as determined by ASTM D3792 or ASTM D4017;
- EL represents the weight fraction of exempt compounds in the non-propellant portion, as determined by Method 8260B, Method 18, ASTM D859, Method 1400;
- WP represents the weight of propellant in grams, as determined by ASTM D3074 as modified in Appendix A of Method 310 for metal aerosol container or ASTM D3063 as modified in Appendix A of Method 310 for glass aerosol container;

EP represents the weight of exempt compounds in propellant in grams, as determined by Method 18;

- (b) an aerosol product that contains LVP-VOC, the volatile organic compound content shall be calculated using the following equation—

$$\text{Percent by weight of volatile organic compounds} = \frac{\text{WL} [(1 - H)(1 - \text{LVP}) - \text{EL}] + (\text{WP} - \text{EP})}{\text{WL} + \text{WP}} \times 100$$

where—

WL represents the weight of the non-propellant portion in grams, excluding packaging and container;

H represents the weight fraction of water in the non-propellant portion, as determined by ASTM D3792 or ASTM D4017;

LVP represents the weight fraction of LVP-VOC compounds and/or mixtures in the non-propellant, non-aqueous portion, as determined by ASTM D86, ASTM D850, ASTM D1078, ASTM D2879 as modified in Appendix B of Method 310, ASTM D2887, ASTM E1719, section 4 of this Part;

WP represents the weight of propellant in grams, as determined by ASTM D3074 as modified in Appendix A of Method 310 for metal aerosol container or ASTM D3063 as modified in Appendix A of Method 310 for glass aerosol container;

EL represents the weight fraction of exempt compounds in the non-propellant portion, as determined by Method 8260B, Method 18, ASTM D859, Method 1400;

EP represents the weight of exempt compounds in propellant in grams, as determined by Method 18.

3. If the regulated consumer product is—

- (a) a non-aerosol product that does not contain LVP-VOC, the volatile organic compound content shall be calculated using the following equation—

$$\text{Percent by weight of volatile organic compounds} = (\text{TV} - \text{A} - \text{H} - \text{EL}) \times 100$$

where—

TV represents the weight fraction of total volatile material in the non-propellant portion, as determined by Method 24 or Method 24A, ASTM D2369;

- A represents the weight fraction of ammonium in the non-propellant portion, as determined by ASTM D1426 or Method 300.7;
- H represents the weight fraction of water in the non-propellant portion, as determined by ASTM D3792 or ASTM D4017;
- EL represents the weight fraction of exempt compounds in the non-propellant portion, as determined by Method 8260B, Method 18, ASTM D859, Method 1400;
- (b) a non-aerosol product that contains LVP-VOC, the volatile organic compound content shall be calculated using the following equation—

$$\text{Percent by weight of volatile organic compounds} = [(1 - H) (1 - \text{LVP}) - \text{EL}] \times 100$$

where—

- H represents the weight fraction of water in the non-propellant portion, as determined by ASTM D3792 or ASTM D4017;
- LVP represents the weight fraction of LVP-VOC compounds and/or mixtures in the non-propellant, non-aqueous portion, as determined by ASTM D86, ASTM D850, ASTM D1078, ASTM D2879 as modified in Appendix B of Method 310, ASTM D2887, ASTM E1719, section 4 of this Part;
- EL represents the weight fraction of exempt compounds in the non-propellant portion, as determined by Method 8260B, Method 18, ASTM D859, Method 1400.

4. If the regulated consumer product is an aerosol product or a non-aerosol product containing LVP-VOC under sections 2(b) and 3(b) of this Part, LVP-VOC shall be determined according to the following steps—

- (a) if the vapour pressure of a compound or mixture from product's formulation data is unknown, ASTM D86, ASTM D850, ASTM D1078, ASTM D2879 as modified in Appendix B of Method 310, ASTM D2887 and ASTM E1719 may be used to determine the LVP-VOC of the compound or mixture;
- (b) a sample of the LVP-VOC used in the product's formulation shall be tested to determine the boiling point for a compound or for a mixture, and—
- (i) if the boiling point exceeds 216°C, the compound or mixture is a LVP-VOC;
 - (ii) if the boiling point is equal to or less than 216°C, then the percent by weight of the mixture that boils above 216°C is a LVP-VOC;

- (iii) the nearest 5% distillation cut that is greater than 216°C as determined under paragraph (a) shall be used to determine the percentage of the mixture qualifying as a LVP-VOC;
- (c) if a product does not qualify as a LVP-VOC under paragraph (b), a sample of the compound or mixture used in a product's formulation shall be tested utilizing one or both of the following methods for identification of LVP-VOC compounds and mixtures: ASTM D2879 as modified in Appendix B of Method 310, and ASTM E1719, to determine if the compound or mixture meets the definition of LVP-VOC.

5. In the case of floor wax stripper referred to in item 2 of Part 3, the volatile organic compound content shall be calculated in accordance with the test method and equations referred to in sections 1, 2, 3 and 4 of this Part on the basis of the dilution ratio recommended on the products.

SCHEDULE 4

[s. 2]

LITHOGRAPHIC HEATSET WEB PRINTING MACHINES: MEANING OF VOLATILE ORGANIC COMPOUND

1. For the purposes of Part 5 of this Regulation, “volatile organic compound” (揮發性有機化合物) means any volatile compound of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and exempt compounds.
2. In section 1, unless the context otherwise requires, “exempt compound” (豁免化合物) means any of the following compounds—
 - (a) acetone;
 - (b) 1-chloro-1,1-difluoroethane (HCFC-142b);
 - (c) chlorodifluoromethane (HCFC-22);
 - (d) 1-chloro-1-fluoroethane (HCFC-151a);
 - (e) chlorofluoromethane (HCFC-31);
 - (f) chloropentafluoroethane (CFC-115);
 - (g) 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
 - (h) cyclic, branched, or linear, completely fluorinated alkanes;
 - (i) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
 - (j) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;

- (k) cyclic, branched, or linear, completely methylated siloxanes (VMS);
- (l) 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee);
- (m) dichlorodifluoromethane (CFC-12);
- (n) 1,1-dichloro-1-fluoroethane (HCFC-141b);
- (o) 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
- (p) 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
- (q) 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
- (r) 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123);
- (s) 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
- (t) 1,1-difluoroethane (HFC-152a);
- (u) difluoromethane (HFC-32);
- (v) 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OCH₃);
- (w) ethane;
- (x) 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CFCF₂OC₂H₅);
- (y) 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅);
- (z) ethylfluoride (HFC-161);
- (za) 1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
- (zb) 1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
- (zc) methyl acetate;
- (zd) methylene chloride (dichloromethane);
- (ze) 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C₄F₉OCH₃);
- (zf) parachlorobenzotrifluoride (PCBTF);
- (zg) 1,1,1,3,3-pentafluorobutane (HFC-365mfc);
- (zh) pentafluoroethane (HFC-125);
- (zi) 1,1,2,2,3-pentafluoropropane (HFC-245ca);
- (zj) 1,1,2,3,3-pentafluoropropane (HFC-245ea);
- (zk) 1,1,1,2,3-pentafluoropropane (HFC-245eb);
- (zl) 1,1,1,3,3-pentafluoropropane (HFC-245fa);
- (zm) perchloroethylene (tetrachloroethylene);
- (zn) sulphur-containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine;
- (zo) 1,1,2,2-tetrafluoroethane (HFC-134);
- (zp) 1,1,1,2-tetrafluoroethane (HFC-134a);
- (zq) 1,1,1-trichloroethane (methyl chloroform);
- (zr) trichlorofluoromethane (CFC-11);
- (zs) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
- (zt) 1,1,1-trifluoroethane (HFC-143a);
- (zu) trifluoromethane (HFC-23).

Dr. Sarah LIAO
Secretary for the Environment,
Transport and Works

20 November 2006

Explanatory Note

The main purpose of this Regulation is to prohibit the manufacture and importation of certain products (i.e. regulated paints, regulated printing inks and regulated consumer products) if the volatile organic compound content of the product exceeds the maximum limit that is prescribed by the Regulation for that product. Volatile organic compound (“VOC”) content means the amount of volatile organic compounds contained in the product.

Part 2—Regulated paints

2. Part 2 sets out the prohibitions and requirements relating to regulated paints. Schedule 1 sets out the paints to which the Regulation applies, the prescribed limit of VOC content for each regulated paint and the test methods for determining the VOC content.
3. Section 3 prohibits the manufacture and importation of regulated paints with a VOC content in excess of the prescribed limit. The prohibition is to be implemented in phases for different regulated paints: with effect from 1 January 2008, 1 January 2009 and 1 January 2010.
4. Section 4 requires manufacturers or importers to fix, during the transitional period (that is the period between the coming into operation of the Regulation, that is 1 April 2007, and the date on which the prohibition with regard to that paint becomes effective), a label on the surface of the packaging or container of the regulated paint that has a VOC content in excess of the prescribed limit.
5. Section 5 gives the specifications for the labels referred to in paragraph 4.
6. Section 6 requires manufacturers or importers of regulated paints to disclose certain information in the Material Safety Data Sheets, trade catalogues, packaging or containers. This requirement applies to any regulated paint manufactured or imported on or after 1 April 2007.
7. Section 7 requires manufacturers or importers of regulated paints to notify the Authority (a public officer appointed as the air pollution authority under section 4(1) of the Air Pollution Control Ordinance (Cap. 311)) of the VOC contents of the regulated paints manufactured or imported on or after 1 April 2007.

8. Section 8 requires manufacturers or importers of regulated paints to submit annually to the Authority a sales report containing certain information.

Part 3—Regulated printing inks

9. Part 3 sets out the prohibitions and requirements relating to regulated printing inks. Schedule 2 sets out the printing inks to which the Regulation applies, the prescribed limit of VOC content for each regulated printing ink and the test methods for determining the VOC content.

10. Section 10 prohibits the manufacture and importation of regulated printing inks with a VOC content in excess of the prescribed limit. The prohibition is to be implemented in phases for different regulated printing inks: with effect from 1 April 2007 and 1 January 2009.

11. Section 11 requires manufacturers or importers of regulated printing inks to submit annually to the Authority a sales report containing certain information.

Part 4—Regulated consumer products

12. Part 4 sets out the prohibitions and requirements relating to regulated consumer products. Schedule 3 sets out the consumer products to which the Regulation applies, the maximum VOC content for each regulated consumer product and the method of calculating the VOC content.

13. Section 13 prohibits the manufacture and importation of regulated consumer products with a VOC content in excess of the prescribed limit. The prohibition is to be implemented in phases for different regulated consumer products: during the period between 1 April 2007 and 31 December 2008, with effect from 1 January 2008 and 1 January 2009.

14. Section 14 requires manufacturers or importers of regulated consumer products to submit annually to the Authority a sales report containing certain information.

Part 5—Lithographic heatset web printing machines

15. Part 5 contains requirements relating to lithographic heatset web printing machines. Schedule 4 explains the meaning of volatile organic compound in relation to these machines.

16. Section 16 requires an owner of a lithographic heatset web printing machine to install an emission control device on the machine. The requirement applies with effect from 1 January 2009. The emission control device has to comply with certain requirements, and the owner has to ensure that a certificate, certifying that the requirements have been complied with, is displayed on the machine.

Part 6—Offences and defences

17. Part 6 provides for the offences under the Regulation, the defences available to a person charged under the Regulation and certain presumptions.

18. The prohibitions and requirements relating to the manufacture and importation of regulated products under the Regulation are imposed with reference to certain dates. One of the presumptions is that, in the absence of evidence to the contrary, a regulated product that is found in Hong Kong is presumed to have been imported or locally manufactured after the date on which the prohibition or requirement became effective.

19. The other presumption is that, in the absence of evidence to the contrary, a regulated product found in Hong Kong is presumed to be not in transit, not in the course of transshipment and not goods that are solely for export or re-export.

Part 7—General provisions

20. Part 7 sets out the provisions that are applicable to all regulated products.

21. Section 20 disapplies the Regulation to regulated products that are in transit, in the course of transshipment or are solely for export or re-export.

22. Section 21 empowers the Authority to exempt in writing any regulated product from the provisions of the Regulation in certain circumstances.

23. Section 22 requires a manufacturer or an importer to keep and retain certain records and empowers the Authority to inspect them.