

Extending the Control of Volatile Organic Compound Content to Cleaning Products 擴大揮發性有機化合物含量管 制至清潔產品

Environment and Ecology Bureau
環境及生態局

February 2023



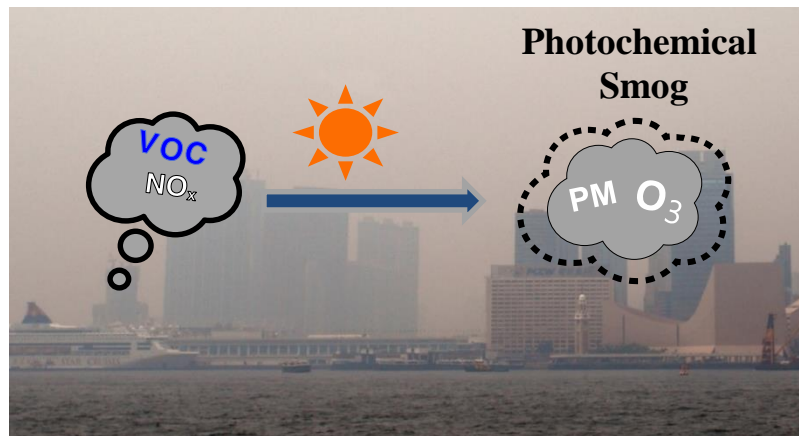
Volatile Organic Compound (VOC)

揮發性有機化合物

Ozone is formed when **VOCs** react with nitrogen oxides under sunlight
在陽光下，**VOCs**會與氮氧化物產生化學作用而形成臭氧

Reducing VOC emissions is a critical measure to tackle the worsening ozone pollution in Hong Kong and in the region

減少VOC排放是解決香港和區內日益惡化的臭氧污染的關鍵措施



Local VOC emissions

本地揮發性有機化合物排放

Total VOC emission in 2020: 21 910 tonnes

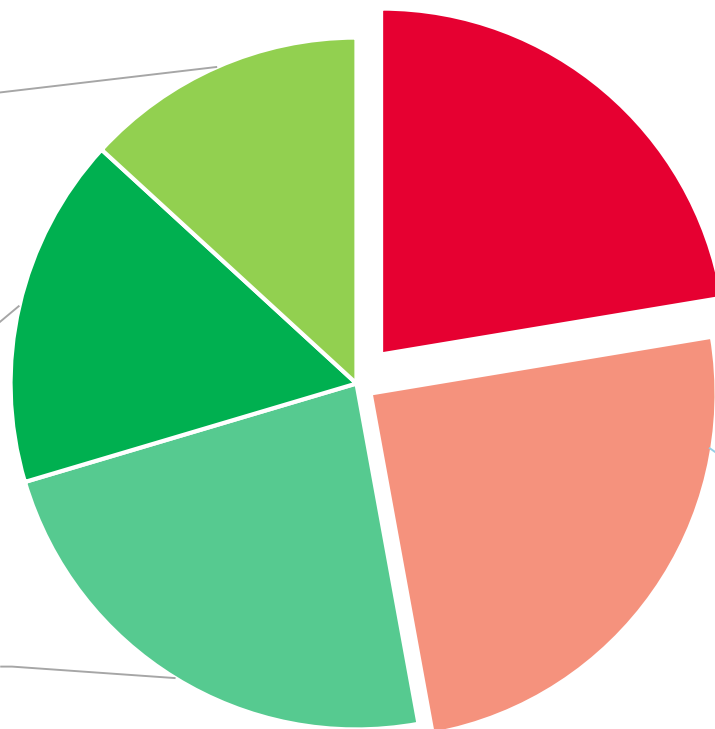
2020年的總VOC排放量：21 910公噸

Others (13%), including
其他排放源，包括

- Electricity generation 發電
- Civil aviation 民用航空
- Other combustion process etc. 其他燃燒過程等

Navigation
水上運輸(16%)

Road transportation
陸路運輸(23%)



Consumer products
消費品 (22%)

Other
VOC-containing
products
其他含VOC的產品
(25%)



Air Pollution Control (VOCs) Regulation

《空氣污染管制(揮發性有機化合物)規例》

- Implemented in phases since 2007

自2007年起分階段實施

- Regulates the VOC content of products manufactured in or imported into Hong Kong

規管在港製造或進口產品的VOC含量

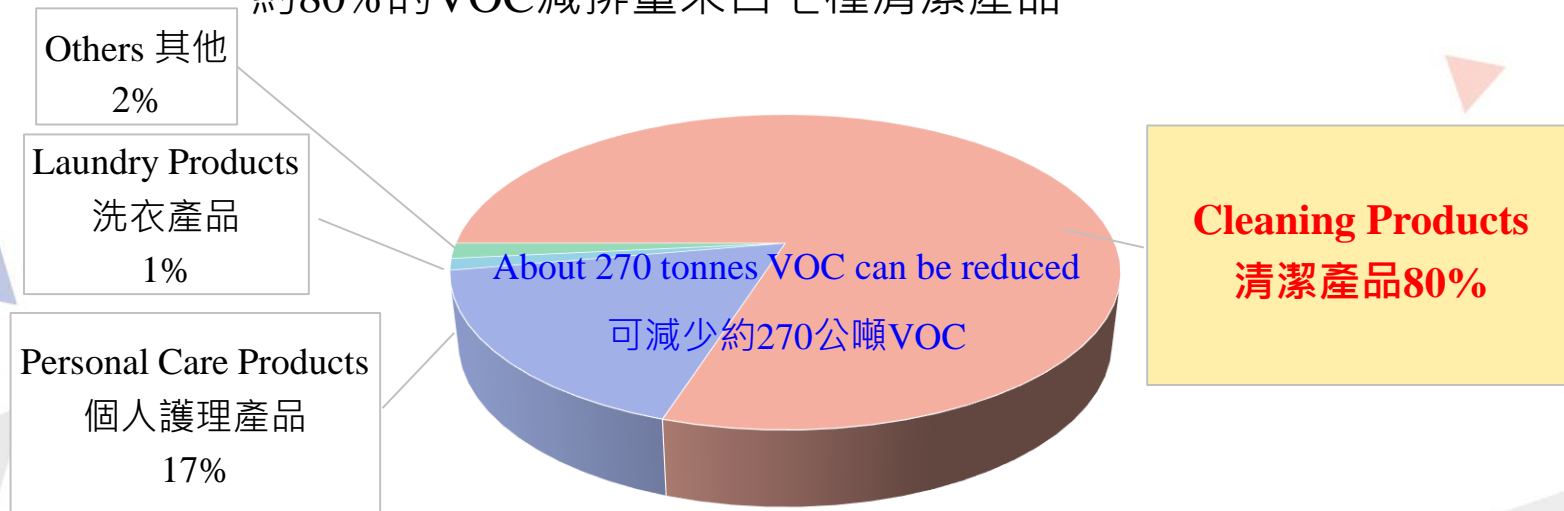
- 172 types of specified products under control, including 6 categories of consumer products (air freshener, hairspray, multi-purpose lubricant, floor wax stripper, insecticide and insect repellent)

管制172種指定產品，包括六類指定消費品（空氣清新劑、噴髮膠、多用途潤滑劑、地蠟清除劑、除蟲劑及驅蟲劑）

Potential VOC reduction

潛在VOC減排量

- Estimate the VOC reduction if unregulated consumer products comply with CARB's VOC limits
評估未受規管消費品符合加州空氣資源局的VOC限值可達致的減排量
 - ➔ ~80% of VOC reduction was attributable to 7 types of cleaning products
約80%的VOC減排量來自七種清潔產品



Potential reduction from unregulated consumer products
未受管制消費品的潛在減排量

Proposal to extend the control to 7 types of cleaning products

建議擴大管制至七種清潔產品

Item 項目	Cleaning product 清潔產品	Proposed VOC limit (in ready-to-use condition) 建議的VOC含量限值 (處於即用狀態)	
		Aerosol (% by weight) 噴霧式 (重量百分比)	Nonaerosol (% by weight) 非噴霧式(重量百分比)
1	Bathroom and tile cleaner 浴室及瓷磚清潔劑	7	1
2	Disinfectant 消毒劑	70	1
3	General purpose cleaner 一般用途清潔劑	8	0.5
4	Glass cleaner 玻璃清潔劑	10	3
5	Kitchen cleaner 廚房清潔劑	8	4
6	Sanitiser 抗菌劑	70	1
7	Toilet or urinal care product 廁所或尿廁護理產品	10	3

Considerations of setting the VOC content limits

設定VOC含量限值的考慮因素

- ❑ Continue to adopt CARB standard
繼續採用美國加州空氣資源局的標準
- ❑ Availability of compliant products by analysing local marketing and product testing data
分析本地市場和產品測試數據，了解符合建議標準產品的供應情況
- ❑ Comments from stakeholders and major suppliers
各持份者和主要供應商的意見
- ❑ Local circumstances
本地情況



Cleaning products for household market

家用市場的清潔產品

- ❑ The marketing data revealed that the market share of compliant products is over 70%
市場數據顯示合規產品佔超過70%市場份額



Cleaning products for institutional / commercial market

機構 / 商用市場的清潔產品

- In general, cleaning products for institutional / commercial use refer to those used by cleaning companies at institutions or commercial premises and are covered in the proposed control.

機構 / 商用清潔產品一般是指清潔公司用於機構或商業處所的清潔產品，都包括在建議管制之內

- Product information was provided by suppliers, and representative products covering different price ranges were also selected for testing. Most of the products were in compliance with the proposed VOC limits.
- 供應商提供產品的資料，並從不同價格範圍中挑選具代表性的產品進行測試。大多數的產品都能符合建議的VOC限值



Definitions of Cleaning Products

清潔產品的定義



General Purpose Cleaner

一般用途清潔劑

- ❖ products designed or labelled to clean hard surfaces in homes, garages, patios, commercial, or institutional environments.
指經設計或標明為用作清潔家居、車房、庭院、商業或機構環境內堅硬表面的產品
- ❖ includes products that clean appliances, counters, walls, cabinets or floors and products that claim to clean a variety of similar surfaces such as plastics, stone or metal
包括清潔器具、櫃台、牆壁、櫃或地板的產品，以及聲稱用作清潔各種相似表面（例如塑膠、石料或金屬）的產品
- ❖ **does not include kitchen cleaner and dishwashing detergents**
不包括廚房清潔劑及洗碗碟清潔劑

Kitchen Cleaner

廚房清潔劑

- ❖ products designed or labelled to:
指經設計或標明為作以下用途的產品：
 - (i) clean hard surfaces in kitchens; or
清潔廚房的堅硬表面；或
 - (ii) remove baked on greases or deposits from food preparation or food cooking stoves or tools
去除預備或烹煮食物的爐具或工具表面的油漬或殘留物

❖ **does not include dishwashing detergents**
不包括洗碗碟清潔劑

Glass Cleaner

玻璃清潔劑

- ❖ products designed or labelled primarily for cleaning surfaces made of glass
指經設計或標明為主要用作清潔玻璃表面的產品
- ❖ **does not include 不包括：**
 - products solely for the purpose of cleaning optical materials used in eyeglasses, photographic equipment, scientific equipment and photocopying machines
只用作清潔眼鏡、攝影器材、科學設備及影印機所使用的光學物料的產品

Disinfectant & Sanitiser (1)

消毒劑及抗菌劑 (1)

Disinfectant 消毒劑

- labelled as a "disinfectant", or is designed or labelled primarily to **destroy or irreversibly inactivate** infectious or other undesirable bacteria, pathogenic fungi, or viruses **on surfaces or inanimate objects**

標明為「消毒劑」的產品，或經設計或標明主要**用作破壞或不可逆轉地滅活**附於**表面或無生命物體**的具傳染性或其他不良細菌、致病真菌或病毒

Sanitiser 抗菌劑

- labelled as a "sanitiser," or is designed or labelled primarily to **reduce, but not necessarily eliminate**, microorganisms **in the air, on surfaces, or on inanimate objects**

標明為「抗菌劑」的產品，或經設計或標明為主要**用作減少**（**但不一定能消除**）**空氣中、表面或無生命物體**上的微生物的產品

Disinfectant & Sanitiser (2)

消毒劑及抗菌劑(2)

Do not include the following products 不包括以下產品:

- ❖ products labelled solely for use on humans/animals
標明只用於人類/動物的產品
- ❖ products which are designed or labelled with other primary functions (e.g. for use on medical equipment, for use on food-contact surfaces, for use on fabrics, etc.) that make sanitising or antimicrobial claims on the label
設計/標明具有其他主要功用(例如:用於醫療儀器、用於與食物接觸的表面、用於織物等)的產品,並在標籤上聲稱有消毒或菌效用
- ❖ Disinfecting or sanitising products labelled as containing not less than 60% (by volume) ethanol, isopropanol or n-propanol, or a combination of these substances
標明含有不少於60%(以體積計)乙醇、異丙醇或正丙醇,或以上物質的組合的酒精類產品



Bathroom and Tile Cleaner

浴室及瓷磚清潔劑

- ❖ product designed or labelled to clean tile or surfaces in bathroom
經設計或標明用作清潔浴室瓷磚或表面的產品



Toilet or Urinal Care Product

廁所或尿廁護理產品

The current definition in the VOCs Regulation remains unchanged
VOCs規例中的現有定義保持不變

- ❖ product designed or labelled to clean or to deodorize toilet bowl, toilet tank, or urinal
經設計或標明為用於清潔馬桶、廁所水箱或尿廁或為其除臭的任何產品



**NO
CHANGE**

Impacts on Cleaning Performance

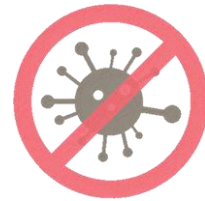
對清潔效能的影響

- ❑ VOCs are widely used as solvent to provide degreasing function, or as a propellant
VOCs廣泛地用作溶劑以提供去油功能，或用作為推進劑
- ❑ Cleaning performance could be maintained in a satisfactory level after product reformulation to comply with the proposed VOC content limit
產品在更改配方至符合建議的VOC含量限值後仍可維持良好的清潔效能
- ❑ VOCs in aerosol products can be replaced by other alternative propellants
噴霧產品中的VOCs可以其他替代推進劑取代



Impacts on Disinfecting Efficacy

對消毒效能的影響



- ❑ Majority of active ingredients of disinfecting products do not contain VOCs, e.g. bleach. These products will not be affected by the proposed control.
大部分消毒產品的有效成分不含VOCs，例如漂白水。這些產品將不會受影響
- ❑ Disinfecting products used on human, e.g. alcohol-based hand rub and alcohol pads will be excluded from the control.
用於人類的消毒產品，例如酒精搓手液、酒精消毒棉等將不受管制
- ❑ A review by CARB determined that the adoption of the VOC content limits could still allow products to achieve a satisfactory level of disinfecting/sanitising function.
加州空氣資源局進行的評估確認在VOC含量限值下，產品的消毒或抗菌功能仍可達到良好的水平

Cost Implications 成本影響

- ❑ The extensive use of low VOC cleaning products on the market indicated that the proposed control should have little impacts on the cost of products.
低VOC清潔產品在市場上獲廣泛使用，顯示管制建議對產品的成本影響輕微
- ❑ For small portion of products requiring reformulation, no substantial impact on the product price in the long run is expected.
對於小部分需要調整配方的產品，長遠而言，預計不會對產品價格造成重大影響

Product development cost 產品開發成本

One-off expenses would not cause any impact in the long run
一次性開支不會造成長遠影響

Alternative material cost 替代材料成本

The VOC component takes up a very small portion of the constituents
VOC只佔產品成分中很小部分

Other Control Requirements

其他管制規定

The following prevailing provisions will remain **unchanged**
下列現行的管制條文將**維持不變**

- ❖ Reporting and keeping of sales information
報告及保存銷售資料
- ❖ Exemption from control
豁免管制
- ❖ Allowable exemption of fragrance incorporated into the product up to 2% by weight of product
可獲豁免計算加入產品內佔產品重量不超過2%的香料
- ❖ Exempt compound
豁免化合物



Proposed Timeframe

建議時間表



Your Views 請提出意見

On or **before 28 February 2023**
請於 **2023年2月28日之前**



Environmental Protection Department
33/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
(Attn.: VOC Consultation – Cleaning Products)
環境保護署
香港灣仔告士打道5號 稅務大樓33樓
(請交：揮發性有機化合物管制諮詢 – 清潔產品)



VOCConsult@epd.gov.hk



2827 8040





Consultation Paper:

http://www.epd.gov.hk/epd/english/environmentinhk/air/pub_consult/air_consult.html

諮詢文件

http://www.epd.gov.hk/epd/tc_chi/environmentinhk/air/pub_consult/air_consult.html

Q&A Session

答問環節



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Supplementary slides

補充資料

Prevailing Overseas Control Limits 現行海外管制限值

		USEPA 美國國家環境保護局	California (CARB) 加州空氣資源局
No. of regulated consumer products 受管制消費品數量		Less 較少	More comprehensive 更全面
Current VOC limits	General purpose cleaner 一般用途清潔劑	- All forms所有形式 10	-Aerosol噴霧 8 -Nonaerosol非噴霧 0.5
	Glass cleaner 玻璃清潔劑	-Aerosol噴霧 12 -Nonaerosol非噴霧 8	-Aerosol噴霧 10 -Nonaerosol非噴霧 3
	Bathroom and tile cleaner 浴室及瓷磚清潔劑	-Aerosol噴霧 7 -All other forms 5 所有其他形式	-Aerosol噴霧 7 -Nonaerosol非噴霧 1
現時 VOC 限值	Toilet or urinal care product 廁所或尿廁護理產品	N/A	-Aerosol噴霧 10 -Nonaerosol非噴霧 3
	Disinfectant 消毒劑	N/A	-Aerosol噴霧 70 -Nonaerosol非噴霧 1
	Sanitiser 抗菌劑	N/A	-Aerosol噴霧 70 -Nonaerosol非噴霧 1