

當你進入一個新裝修的房間，或是將一套新壓木家具的包裝拆開，又或是使用噴霧式產品時，可能也曾嗅到一陣難聞的氣味，或感到眼睛、鼻子和喉嚨不適。你可能已接觸了這些物品所釋出的揮發性有機化合物（VOCs）。其實，你可以透過簡單的方法，避免或減少接觸這些物質。

什麼是 VOCs 及其對健康的影響？

VOCs 包含各種可於室溫下揮發的有機化合物。在一般的室內環境中，有過百種化合物（包括甲醛）可歸類為 VOCs。這些 VOCs 可由多種不同源頭釋出，包括建造物料、家具、化妝品、香氣產品、清潔劑、殺蟲劑、黏合劑、油漆及二手煙等。乾洗後的衣服亦可能殘存 VOCs。

接觸 VOCs，對健康可構成急性或慢性的影響。有多種 VOCs 會容易使人上癮，亦會抑制中樞神經系統。足夠濃度的 VOCs 可引致眼睛、鼻子和喉嚨不適，甚至頭痛、暈眩、視力失常及其他多種傷害。有多種可於室內量度到的 VOCs，尤其是甲醛，已被公認為人類或動物的致癌物質。鑑於現時對 VOCs 及其混合物的毒理學認識還未足夠，最審慎的做法便是盡量減少與其接觸。



什麼因素可造成 VOCs 問題？

VOCs 問題可能來自：

- 處所的通風不足，未能提供足夠新鮮空氣。
- 處所最近進行裝修或添置新家具。
- 從印刷公司、儲存化學品的地方或裝修工程等源頭所釋出的 VOCs，經通風系統散播。
- 使用可釋出高 VOCs 的產品，如香氣產品、清潔劑、壓木家具和殺蟲劑。
- 棄置含有或浸透 VOCs 的廢料時沒有把它們密封。
- 穿著經乾洗後的衣物前沒有充分透氣。

如何避免及減少接觸 VOCs ？

- 最有效的措施是保持處所空氣流通，並為潛在的 VOCs 源頭裝設獨立通風設備。
- 應盡量使用含低 VOCs 的產品，及要求製造商提供有關排放的資料。

- 應依照製造商的指示處理油漆、黏合劑、清潔劑及其他含 VOCs 的產品，以及避免在沒有適當通風的密封空間內使用這些產品。

- 選用釋出較少甲醛及 VOCs 的實木家具。避免選用無覆蓋的壓木家具，應選擇以膠板或防水材料覆蓋表面和邊緣的壓木製品，以減少釋出甲醛。



- 新家具最好放在室外至少數天或數周，讓它們先透氣然後才放入室內。於入伙前數天或數周提早把新家具搬入。

- 在大廈入伙前，應評估各種物料所釋出的排放總量和持續時間，以決定是否需要加強通風或延長吹散時間。

- 裝修和防蟲等工作應安排在空置時段內進行。在有關工作完成後，讓新鮮空氣吹透受影響的地方。期間亦應監察施工的時間和進度，確保已採取適當的預防措施，以盡量減少 VOCs 的積聚。

- 經乾洗後的衣物，在穿著前應確保已經完全透氣。

如何量度室內的 VOCs ？

要辨別和量度所有種類的 VOCs，是非常昂貴和費時。因此，進行初步評估時，一般會先量度 VOCs 的總量（即所有 VOCs 的總和，而不區分個別種類）。

在決定是否需要量度個別種類的 VOCs 前，應先考慮上述消除 VOCs 的源頭或減少接觸 VOCs 的措施。若需要量度個別種類的 VOCs，你應尋求環境專業的人士進行量度和數據分析。

含 VOCs 的產品是否受規管？

《空氣污染管制（揮發性有機化合物）規例》對漆料、指定消費品、黏合劑和密封劑，以及印墨、潤版液和印刷機清潔劑的 VOCs 含量已訂立限值，以減少該等產品的 VOCs 排放。

如想得到更多資料，請聯絡：

室內空氣質素資訊中心
電話：2788 6177 傳真：2788 6181
電郵：enquiry@iaq.gov.hk
網址：http://www.iaq.gov.hk



Indoor Air Quality
Information Centre
室內空氣質素資訊中心



環境保護署
Environmental Protection Department

揮發性有機化合物 與你 Volatile Organic Compounds and You



You may have experienced an unpleasant smell or irritation of the eyes, nose and throat when you entered a newly decorated room, opened the packing of a new pressed-wood furniture, or used an aerosol product. In these cases, you may have been exposed to the volatile organic compounds (VOCs) emitted from these products. In fact, you can avoid or reduce such exposure by simple means.

What are VOCs and their health effect?

VOCs are a diverse group of organic compounds that evaporate at room temperature. In a typical indoor environment, there are over a hundred compounds, including formaldehyde, that can be classified as VOCs. These VOCs are emitted from many sources such as building materials, furniture, cosmetics, fragrance products, cleaning agents, pesticides, adhesives, paints and tobacco smoke. Clothes which have been dry cleaned may also contain residual VOCs.



Exposure to VOCs may result in both acute and chronic health effects. Some of the VOCs are strongly addictive and can result in the depression of the central nervous system. In sufficient quantities, VOCs can cause eye, nose and throat irritations, and even headaches, dizziness, visual disorder and many other impairments. Some VOCs, formaldehyde in particular, which have been measured indoors are known human or animal carcinogens. As existing knowledge of toxicological effects of VOCs and their mixtures is still incomplete, it is always prudent to minimise exposure to them.



What are the possible causes of indoor VOC problem?

The problem may arise from:

- Poor ventilation with insufficient supply of fresh air.
- Premises recently renovated or furnished.
- Spread of VOCs via the ventilation system from localised potential sources, such as printing shop, chemical store or renovation work.
- Use of high VOC-emitting products such as fragrance products, cleaning agents, pressed-wood furniture and pesticides.
- Waste materials containing or soaked with VOCs not packed airtight for disposal.
- Dry-cleaned clothing not adequately aired out before use.

How to avoid or reduce indoor VOC exposure?

- The most effective measure is to maintain good ventilation for the premises, and provide independent exhaust ventilation to potential VOC sources.
- Use low VOC-containing products as far as possible and request emissions data from the manufacturers.
- Follow manufacturers' instructions in handling VOC products such as paints, adhesives and cleaning agents, and avoid using such products in an enclosed space without proper ventilation.
- Select solid wood furniture which emits relatively little formaldehyde and VOCs. Avoid bare pressed-wood furniture and select those that are covered by laminate or water-repellent finish on the surfaces and edges to help reduce VOC emissions.
- Air out new furniture for at least several days or weeks before placing it indoors. Allow early move-in of new furniture to the premises at least several days or weeks before occupation.

- Before a building is occupied, assess the total amounts and duration of emissions of the various materials to determine if increased ventilation or extended flush-out period is needed.
- Schedule renovation and pest control work during unoccupied times and flush the affected area with fresh air to dilute emissions upon completion of work. Monitor the schedules and process to ensure that appropriate precautions are taken to minimise the accumulation of VOCs.
- Air out thoroughly the dry-cleaned clothing before use.

How to measure indoor VOCs?

As identification and measurement of all individual VOCs are expensive and time-consuming, measuring the total VOCs (TVOC) altogether, i.e. sum of all VOCs without distinguishing them individually, is generally adopted for initial assessment.

Before deciding on the need to measure individual VOCs, the above measures to get rid of the sources or reduce the exposure should be considered. In case measurement of individual VOCs is needed, you should seek help from environmental professionals to carry out the measurement and interpret the results.

Are VOC-containing products regulated?

The Air Pollution Control (Volatile Organic Compounds) Regulation has set limits on the VOC content of paints, selected consumer products, adhesives and sealants, as well as printing inks, fountain solutions and printing machine cleaning agents to reduce the emissions of VOCs from these products.

For more information, please contact:

Indoor Air Quality Information Centre
Telephone: 2788 6177 Facsimile: 2788 6181
E-Mail: enquiry@iaq.gov.hk
Website: <http://www.iaq.gov.hk>