

室內空氣質素 Indoor Air Quality

創新科技推動健康及舒適生活
Innovative Technology for Healthy & Comfort Living



前言 Preface

隨著工商業客戶對室內空氣質素日趨重視，近年煤氣抽濕機已廣泛應用於商業樓宇和工業系統，為客戶締造可持續發展的環境及健康舒適的綠色生活。

煤氣抽濕機讓客戶無需使用製冷系統來調節濕度，大大減低鮮風櫃的負荷，節省了空調能源開支。此外，在室內保持合適的濕度不僅可提高客戶的舒適度，同時有助抑制細菌滋生，預防病菌傳播。

As commercial and industrial customers place greater emphasis on indoor air quality (IAQ), desiccant dehumidifiers have been increasingly adopted in commercial buildings and industrial systems to offer a sustainable environment for building users, with a view to creating a green living space.

Gas desiccant system need not rely on chiller systems to regulate humidity. Thus, they reduce the burden on the primary air handling unit (PAU) and chiller system, while saving HVAC running costs for customers. Meanwhile, maintaining high quality indoor air not only improves the comfort level of the buildings but also suppresses bacteria growth, thus offering a comfortable and hygienic environment to help prevent the spread of pathogens.

目錄 Index

室內空氣質素與健康 Indoor Air Quality & Health

P.4 - 9

熱舒適與衛生 Thermal Comfort & Hygiene

P.10 - 14

煤氣抽濕創新應用 Innovative Technology in Desiccant Dehumidification

P.15 - 25

成功案例 Showcase

P.26 - 55

室內空氣質素與健康 IAQ & Health

自七十年代後期經濟轉型，現時大部分人長時間在室內工作，公眾日趨關注良好的室內空氣質素對社會和經濟的影響。研究指出惡劣的室內環境可導致「病態樓宇綜合症」，令生產力下降。

As a result of economic transformation since the late 1970s, the majority of the workforce now works indoors, increasing the socioeconomic importance of indoor air quality (IAQ). Research has shown poor indoor environment to cause Sick Building Syndrome (SBS), jeopardising productivity.

香港土地面積
HONG KONG
LAND MASS

263平方公里(km²)

的土地作居住或工作等用途
for living/working

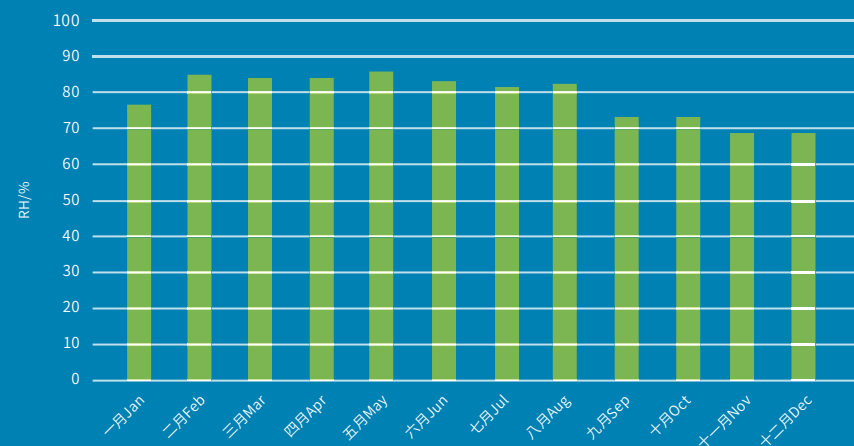


750萬人口
7.5 million population

1106平方公里(km²)

地勢山巒起伏
with hilly terrain

2019年香港的相對濕度
Relative Humidity in HK in 2019



在2019年，有318天的相對濕度超過70%
In 2019, 318 days with recorded RH over 70%

可接受室內空氣質素的定義 Definition of Acceptable IAQ

「在經審理當局測定的空氣中存在的已知污染物的含量未達有害水平，而暴露在此空氣中的極大比率（八成或以上）的人士並未對其質素表示不滿。」

美國供暖製冷及空調工程師學會 (ASHRAE) 標準62.1-2016《可接受室內空氣質素的通風標準》

“Air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities and with which a substantial majority (80 per cent or more) of the people exposed do not express dissatisfaction.”

ASHRAE Standard 62.1-2016 Ventilation for Acceptable Indoor Air Quality



香港的室內空氣質素 IAQ in Hong Kong



環境保護署於2003年實施「室內空氣質素管理計劃」，其後考慮到本地的實際情況及採用世界衛生組織最新的室內空氣質素指引的可行性後，於2019年修訂了室內空氣質素指標，並加入霉菌參數，以加強對空氣污染物的管制。

The Environmental Protection Department launched the IAQ Certification Scheme in 2003. Taking into account local circumstances and the practicability of adopting the latest IAQ guidelines of the World Health Organisation (WHO), the scheme revised its IAQ objectives in 2019 to **tighten control on air contaminants**, including adding a **new parameter for mould**.



改善室內空氣質素對不同持份者的重要性

Importance of IAQ to Stakeholders

商業機構 To individual businesses

惡劣的室內空氣質素除了使生產力下降，亦導致直接投放在醫療方面的支出增加；而霉菌污染更會對建築材料和設備造成損害，令營運成本增加。

Apart from productivity loss, poor IAQ also leads to additional expenses, including **direct medical costs** for workers and **costs for damage** such as mould contamination to building materials and equipment.

物業管理人員 To property managers

改善室內空氣質素能提高建築物在租賃市場上的競爭力，並降低承擔不必要賠償責任的風險。

IAQ improvements enhance the competitiveness of buildings in the leasing market help property management reduce unnecessary liability exposure.

影響室內空氣質素的因素

Factors Affecting IAQ

1. 熱舒適度 Thermal comfort



溫度
Temperature



濕度
Humidity



空氣流量
Air movement

2. 空氣污染物 Air contaminants



空氣中的粒子
Airborne particles

VOCs

揮發性有機化合物
Volatile organic compounds



石棉
Asbestos



甲醛
Formaldehyde



氡氣
Radon



燃燒氣體
Combustion gases



臭氧
Ozone



呼吸產物和體味
Respiratory products and body odours



微生物
Microorganisms

熱舒適度 Thermal Comfort

熱舒適度是指表達對熱環境滿意的主觀感受，並為空調辦公室及公眾場所設定供暖通風及空調系統的最理想溫度、相對濕度及空氣流動速度提供指引。

Thermal comfort refers to the subjective perception of satisfaction with the thermal environment. It serves as a yardstick for determining the optimum temperature, relative humidity and air movement settings for the heating, ventilation and air-condition (HVAC) system to enhance comfort for occupants in air-conditioned offices and public places.



溫度 Temperature



根據美國供暖製冷及空調工程師學會的研究顯示，在正常情況下，逾九成人在室溫介乎22.5°C至25.5°C的環境會感到舒適。

According to studies by the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE), under normal circumstances, more than 90 per cent of people would consider a room temperature of 22.5 to 25.5 degrees Celsius to be comfortable.

濕度與霉菌 Humidity & Mould

濕度會影響人體透過排汗來降低體溫的能力，從而影響熱感上的可接受程度，例如濕度高時身體便有黏膩的感覺。高濕度同時是各種呼吸道疾病的潛在原因。

Humidity influences thermal comfort by limiting the human body's ability to dissipate heat through perspiration, resulting in a feeling of stickiness. High humidity is also a potential cause for various respiratory diseases.

霉菌是一組依賴已死有機物質生存的微生物。香港夏季高溫潮濕，尤其有利霉菌滋生。

Mould is a group of microscopic fungi which lives on dead organic material. Hong Kong's hot and humid climate is particularly conducive to mould growth.

香港夏季 SUMMER IN HONG KONG



濕度高
High humidity
70-80%



白天
Day
31°C



晚上
Night
26°C

霉菌與樓宇建築 Mould Growth & Building Structure

建築材料和塵埃是霉菌主要的養分來源。霉菌一旦滋生，可以破壞食物、紡織品，皮革、地毯和各種建築材料。

Construction materials and dust are important sources of nutrients for mould. Once mould growth occurs, it can damage food, textiles, leather, carpet and various building materials.

樓宇內霉菌滋生的常見原因:

- 未有適當隔熱的通風管產生冷凝水
- 地毯上的水漬
- 雨水滲入未有妥善密封的樓宇
- 水分積聚在樓宇表面

The most common causes of mould growth in buildings are:

- condensation on improperly insulated air ducts
- water damage on carpets
- rain entering an inadequately sealed building
- accumulation of moisture on building surfaces

霉菌与健康 Mould Growth & Health

一些含毒素的真菌已證實可引致「病態樓宇綜合症」。長期接觸霉菌可導致對霉菌過敏的人產生過敏或哮喘反應。美國供暖製冷及空調工程師學會 (ASHRAE) 標準 62.1-2016 建議將室內相對濕度控制在65%內，以減少微生物滋生的可能性。

Some toxigenic fungi have been shown to induce SBS symptoms. Chronic exposure to mould can induce allergic or asthmatic reactions in mould-sensitised individuals. ASHRAE Standard 62.1-2016 recommends that relative humidity in occupied spaces be kept at under 65 per cent to reduce the likelihood of conditions that can lead to microbial growth.



甚麼是抽濕？ What Is Dehumidification?

相對濕度 (%) Relative Humidity =

空氣中的蒸氣壓
Vapour Pressure of Water
in the Air

空氣中的水分
Moisture Content of
Air Presently

或
OR

飽和空氣的蒸氣壓
Vapour Pressure of Air
at Saturation

飽和空氣的水分
Moisture Content
at Saturation

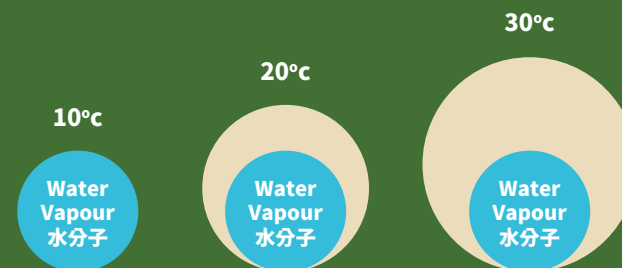
在相同的溫度下
AT SAME GIVEN TEMPERATURE

在相同的水含量情況下，溫度越低，相對濕度越高。

With the same water content, the lower the temperature, the higher the relative humidity.

在相對濕度100%的情況下，空氣不能容納更多水分，溫度下降將導致水分凝結成水滴。

At 100 per cent relative humidity, the air cannot hold more water. A drop in temperature will lead to condensation of water in the form of droplets.



抽濕：同時降低水含量及相對濕度

Dehumidification: Reducing moisture content and relative humidity at the same time

運作原理 Working Principle

以下的濕度圖說明了在相同既定情況下 (pt. 1)，常規冷卻系統和煤氣抽濕機冷卻系統之間的區別。

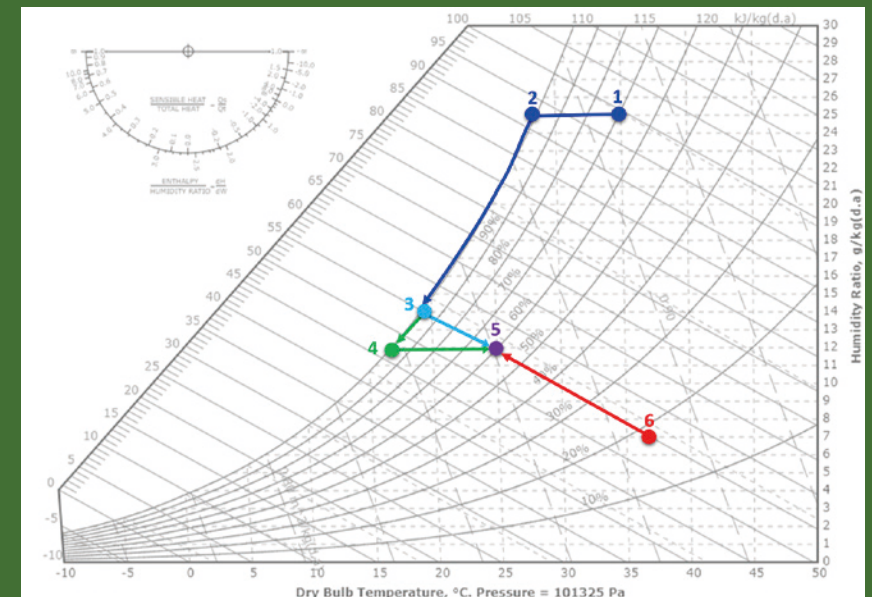
The psychrometric chart illustrates the difference between conventional and gas desiccant cooling systems under the same given situation (pt. 1).

常規冷卻系統首先將空氣冷卻直至其飽和(1-2)，然後繼續冷卻以凝結空氣中的水分 (2-3)，再進一步冷卻空氣以達到所需的水分含量 (3-4)，最後重新加熱 (4-5) 以達到所需條件 (pt. 5)。

A conventional system cools the air until it is saturated (1-2), then continues to cool it to condense out moisture (2-3), overcooling the air to reach the desired moisture content level (3-4) and reheats it (4-5) to reach the desired condition at (pt. 5).

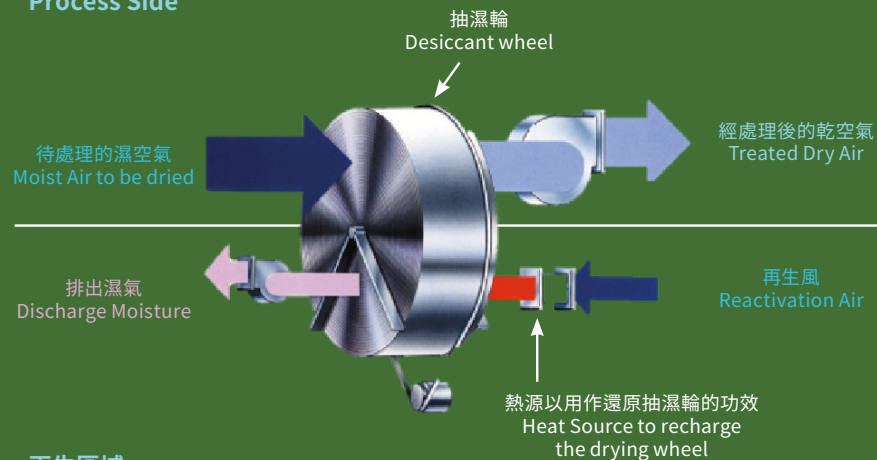
煤氣抽濕機冷卻系統直接去除空氣中的水分至 (pt. 6)，然後將這些去除了水分的空氣與來自冷卻盤的冷空氣混合 (3-5) 以達到所需條件 (pt. 5)。

A gas desiccant cooling system removes moisture directly, bringing the air to (pt. 6), then mixes it with cool air from cooling coils (3-5) to reach the desired condition at (pt. 5).



煤氣抽濕機系統 Desiccant Dehumidifier System

處理區域 Process Side



再生區域 Reactivation Side

每台煤氣抽濕機均由鈦矽膠蜂窩狀抽濕輪、處理區域和再生區域組成。

The gas desiccant dehumidifier consists of a titanium silica gel-based honeycomb desiccant wheel, a processing stream and a reactivation stream.

抽濕輪在兩個區域之間以每小時8-10轉的速度旋轉。

The desiccant wheel rotates at about eight to ten revolutions per hour between the two streams.

在處理區域，當空氣通過抽濕輪時，空氣中的水分被乾燥劑吸收。

On the processing side, air is drawn through the desiccant wheel where moisture is absorbed by the desiccant.

吸附處理空氣的水分後，飽和的抽濕輪部分轉至再生區域以被加熱，釋放所吸附的水分。

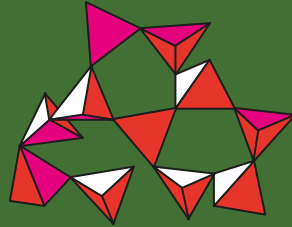
The moist wheel sector turns into the reactivation side where a hot air stream drives off the moisture.

乾燥劑的種類

Types of Desiccant

1. 高效矽膠High Performance Silica Gel (HPS)

- 特強效能 High capacity
- 能抵受酸性環境 Withstands acidic environments
- 無需採取任何措施即可抵受極端潮濕的環境
- Withstands extremely humid conditions without precautions



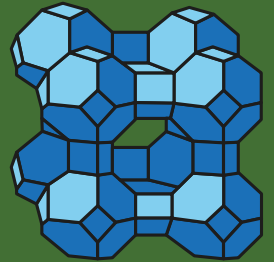
2. 氯化鋰Lithium Chloride (LiCl)

- 能抑制細菌Bacteriostatic
- 不可清洗和重複使用Cannot be washed and re-impregnated

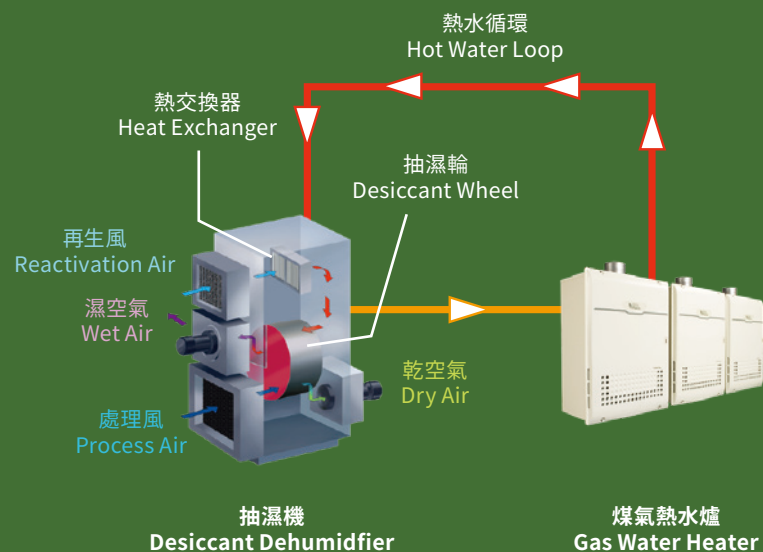


3. 分子篩Molecular Sieve (MS)

- 於極乾燥的環境下具有特強效能
- High capacity at very dry operating conditions
- 能抵受高溫 and 惡劣的環境
- Withstands high temperature and aggressive environments



煤氣抽濕機 Standalone Desiccant Dehumidifier



自推出市場後，煤氣抽濕機已廣泛應用於多個行業，其用戶包括製藥場所、食品工場、酒店、醫院及豪華住宅。抽濕機的供暖通風及空調系統能精確地控制溫度和濕度，以優化室內空氣質素。

Since its introduction, the standalone desiccant dehumidifier has seen wide applications in a vast range of sectors, with users spanning the pharmaceutical, food manufacturing, hotel, hospital and luxury housing fields. Its HVAC system precisely controls temperature and humidity, thereby **optimising** IAQ.



隨著工商業客戶對室內空氣濕度控制日趨重視，煤氣公司近年大力推廣煤氣抽濕機的應用，卻因抽濕機佔有一定空間，因此不時遇到機房空間不足的困難。

As commercial and industrial customers place greater importance on indoor air humidity control, Towngas has promoted the use of gas desiccant dehumidifiers. However, much space is required for installation of a separate primary air handling unit (PAU) and desiccant dehumidifier. Thus, it is difficult to successfully implement such units in Hong Kong's commercial buildings.

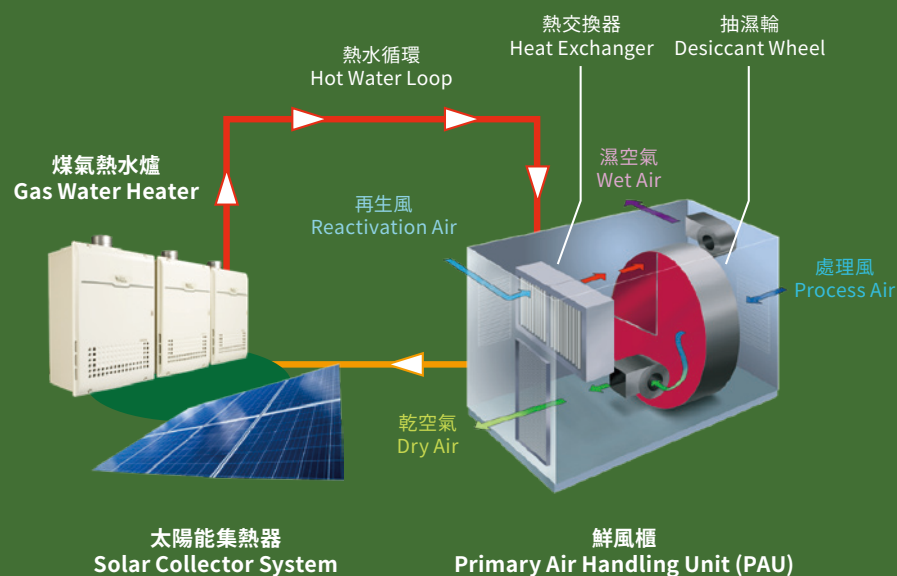
綜合抽濕鮮風櫃 Integrated PAU with Desiccant Wheel

此系統將抽濕輪放入鮮風櫃，並利用煤氣熱水爐所產生的熱水透過熱交換器將空氣加熱，把抽濕輪烘乾以還原其抽濕能力。此方法可以取代傳統直燃式抽濕機的燃燒器，減低廢氣與處理風混合的可能性。

By integrating the desiccant wheel into the PAU and applying a hot water system instead of a gas direct-fired one in the regeneration process, this method mitigates the risk of flue gas exhaust mixing with dry processed air.

同時，此方法不用安裝獨立抽濕機及接駁通風管道而大大節省安裝空間，並可降低設備及工程成本。

In addition, it spares the need for a standalone dehumidifier and associated air-duct, thereby greatly reducing installation space and equipment cost.

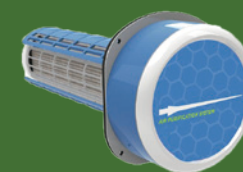


系統亦可結合太陽能集熱器產生熱水，進一步節省能源。

What's more, the system can be integrated with solar collectors to conserve energy during desiccant wheel regeneration.

通過可額外加裝的靜電除塵器和光觸媒紫外線燈，系統甚至可以過濾細顆粒並消滅微生物，以達到日益提高的衛生標準。

With the addition of optional Electrostatic Precipitator (EP) and Photocatalytic Oxidation (PCO) UV lamp components, the system can even filter fine particles and eliminate microbes to meet ever-rising hygiene standards.



光觸媒紫外線燈
Photocatalytic Oxidation (PCO)
UV lamp



靜電除塵器
Electrostatic Precipitator (EP)

掃描QR Code以觀看有關此創新科技的視頻
Scan this QR code to watch our video on this innovative technology



香港中華煤氣有限公司總部大樓 Headquarters of the Hong Kong and China Gas Co. Ltd.

作為主要的能源供應商，煤氣公司在總部大樓採用了多項先進的節能科技及實行優良的環保物業管理方案，以達到減少環境影響的最終目標。總部大樓成為香港首座非住宅大廈獲得香港綠色建築議會頒發綠建環評既有建築(1.2版)最終白金級認證。

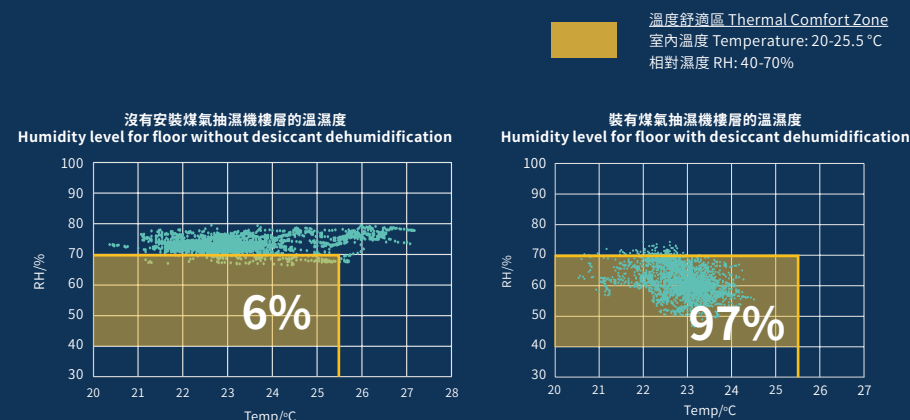
As a leading energy provider, Towngas has achieved numerous building sustainability objectives by adopting advanced energy efficiency technologies as well as best practices on facilities management. Its committed efforts have made it the first non-residential building in Hong Kong to achieve Platinum rating of Final Assessment under the BEAM Plus Existing Buildings (version 1.2).

由於員工大部分時間留在辦公室工作，煤氣公司在總部大樓安裝抽濕機來改善室內空氣質素，可減輕「病態樓宇綜合症」的症狀並提高員工的生產力，從而使公司得益。

As its staff spend the majority of their time working indoors at the office, the Company has applied desiccant dehumidification to improve IAQ, which helps boost staff productivity and reduce SBS, in turn benefitting its performance.

2020年，煤氣公司委託香港城市大學於煤氣公司總部進行研究，評估在不同樓層開啟與關閉煤氣抽濕機對房內溫度和濕度的影響。結果顯示煤氣抽濕機能有效將室內濕度調節至舒適水平。

In 2020, Towngas conducted a research study with the City University of Hong Kong at the headquarters of HKCG comparing the temperature and humidity level in floors with and without a desiccant dehumidifier. The results suggested that the desiccant dehumidifier is effective in controlling humidity to within the thermal comfort zone.



在開啟煤氣抽濕機後，符合溫度舒適區的時間百分比由6%提升至97%。

The percentage of time within the thermal comfort zone increased from 6 per cent to 97 per cent after turning on the desiccant dehumidifier.

香港四季酒店 Four Seasons Hotel Hong Kong

作為全球領先的豪華酒店集團，四季酒店安裝了煤氣抽濕機，將室內空氣質素維持在最高的「卓越級」水平，以提高住客的舒適程度。

As part of the world-leading luxury hospitality group, Four Seasons Hotel Hong Kong has gas desiccant dehumidifiers in place to maintain IAQ at the highest “Excellent” level so as to enhance the comfort of its guests.

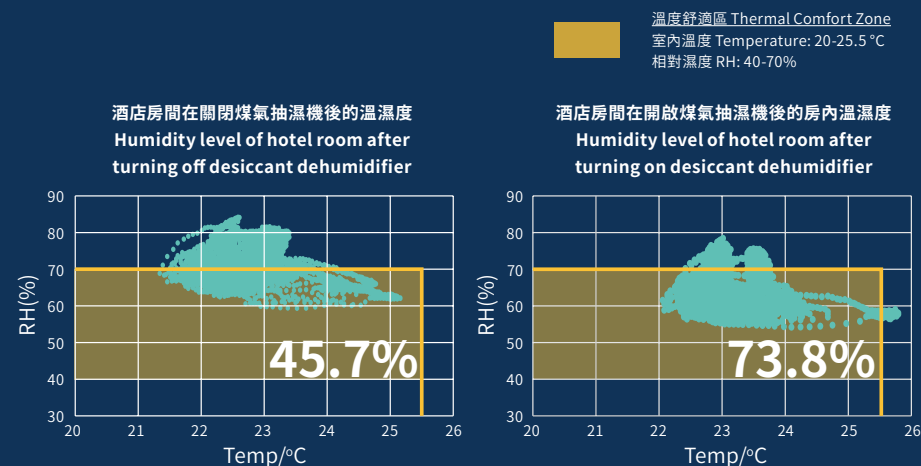
煤氣抽濕令房間保持乾爽並有效提升空氣質素，讓房內整體環境如天花板和家具能保持最佳狀態。

Gas desiccant dehumidification keeps humidity constant and improves air quality while benefitting the overall condition of the indoor space, including the ceiling and furniture.



2020年，煤氣公司委託香港城市大學於四季酒店進行研究，評估在同一酒店房間內，開啟與關閉煤氣抽濕機對房內溫度和濕度的影響。結果顯示煤氣抽濕機能有效將室內濕度調節至舒適水平。

In 2020, Towngas conducted a research study with the City University of Hong Kong at the Four Seasons Hotel Hong Kong comparing the temperature and humidity level in rooms with and without a desiccant dehumidifier. The results suggested that the desiccant dehumidifier is effective in controlling humidity to within the thermal comfort zone.



食品工場 Food Manufacturing

食品生產過程中使用大量熱水和水蒸氣，工場內形成高溫潮濕的環境，容易滋生霉菌，令食物變質及縮短保存期。

A large amount of hot water and steam is used in food processing. This creates a warm and humid environment that is conducive to mould growth, which undermines food quality and shortens its shelf life.

用於包裝糕點的紙板盒一旦吸濕受潮便會變軟，失去保護包裝物品的功能。

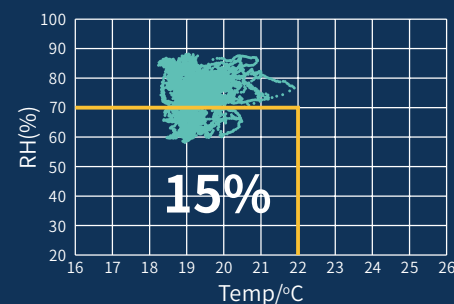
When cardboard boxes absorb excess moisture, they fail to serve their function of protecting the packaged goods.



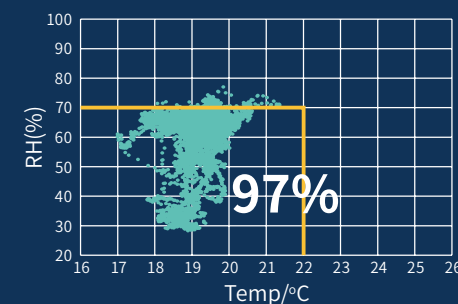
因此，食品製造工場都會使用抽濕機來調節廠內溫度和濕度，以保持儲存空間乾爽，防止濕氣入侵，影響產品的品質。

To ensure the quality of products, dehumidifiers are commonly found in storage areas of food factories to maintain a constant, low humidity level.

食品廠在安裝煤氣抽濕機前的濕溫度
Humidity Level of the Food Manufacturer Before
the Installation of Desiccant Dehumidifier



食品廠在安裝煤氣抽濕機後的濕溫度
Humidity Level of the Food Manufacturer After
the Installation of Desiccant Dehumidifier



在開啟煤氣抽濕機後，符合設定溫度和濕度(22°C/ 70% RH) 的時間百分比由15%提升至97%。

The percentage of time within the setting level (22°C/ 70% RH) increased from 15 per cent to 97 per cent after turning on the desiccant dehumidifier.

冰極餐廳 Tuxedos Restaurant



冰極餐廳以欣賞企鵝成群嬉戲作招徠，因此餐廳內部分地方全年均保持較低溫度以照顧極地動物需要。另一方面，餐廳的用餐區需保持適當溫度，以減慢食物冷卻的速度。

With great views of the Polar Adventure's penguins, part of Tuxedos Restaurant is kept at relatively low temperatures throughout the year to keep the polar animals comfortable. On the other hand, the temperature in dining area is kept at thermal comfort level to ensure that the food does not go cold quickly.

溫差導致玻璃觀賞屏出現冷凝水。餐廳嘗試減少鮮風供應和降低室內溫度以解決問題；然而，鮮風不足會影響員工和食客的健康。安裝煤氣抽濕機可以在不影響鮮風供應的同時，保持餐廳的室內空氣質素。

Condensation on the observation panel caused by the temperature difference had been a major concern for the restaurant. Attempts were made to address the issue by limiting the fresh air supply and lowering the indoor temperature. However, this was not ideal for the health of staff and diners. The incorporation of gas desiccant dehumidification has solved this problem by maintaining an adequate supply of fresh air while improving IAQ at the restaurant.

藍灣半島會所 Island Resort Clubhouse

濕度偏高一直是室內游泳池所關注的問題。來自池水表面的蒸氣冷凝會加速泳池內的設施老化，從而增加對現有設施及裝修的維修保養費用。

High indoor humidity was a key concern for indoor swimming pools. Water vapor from the warm surface of pool condenses and induce the aging of existing facilities, thus, the maintenance cost of the existing facilities and decoration will be increased.

煤氣抽濕能以較低的能源成本實現最佳的濕度控制，提升客戶的舒適度及游泳體驗。

Desiccant dehumidification by means of Towngas can provide optimal humidity control with lower energy cost, improve the human comfort and swimming experience for occupants.

Mega Ice

在冰面和屋頂上的冷凝水導致冰上和觀眾席出現水滴。情況在觀眾聚集時進一步惡化。溜冰場容易因濕度高而出現霧氣及降低能見度，為溜冰者及觀眾帶來不適。

Condensation on ice surface and the roof leads to dripping on ice and auditorium. The problem deteriorates during events with an audience, as humidity rises further and fog appears over the ice rink, disturbing visibility and bringing uncomfortable indoor climate for skaters and spectators.

使用煤氣抽濕可以較低成本確保溜冰場的露點接近冰面溫度。

Desiccant dehumidification ensures the dew point of the rink to be kept low and close to the ice surface temperature at reduced cost.



新科製藥有限公司 SYNCO (H.K.) LIMITED

濕度控制是藥劑生產的重要一環，濕度過高會令藥丸溶解或粘在一起，影響產品質量。然而，傳統的製冷系統無法實現較低的濕度組合。

Moisture control is essential in pill and tablet production, otherwise the products will dissolve and stick together, resulting in quality deterioration. Yet, the low RH is generally not possible to be achieved by conventional chiller systems.



作為香港領先的非專利藥供應商，集團的生產設施獲得歐盟PIC/S GMP認證，配備煤氣抽濕設備，乎合藥物生產要求。

Being the leading provider of generic drugs in Hong Kong, the Group's PIC/S-accredited production facilities are equipped with dehumidifiers to cater the low RH manufacturing condition for medicines.



香港飛機工程有限公司 HAECO Group

飛機引擎非常昂貴，通常在機件故障等緊急情況下使用。為確保機隊的安全、質量和可靠度，引擎通常存放在倉庫內以備不時之需。

Spare jet engines are expensive and often deployed in emergencies, such as in the case of engine failures. To ensure the safety, quality and reliability of aircraft fleets, spare engines are generally kept in storage.

在飛機引擎倉庫中，金屬材料和電子設備容易受濕氣影響而腐蝕，故需要安裝煤氣抽濕機來控制濕度。

While in storage, ferrous materials and electronic equipment are prone to corrosion. The relative humidity of the air in the storage needs to be controlled using gas desiccant dehumidifiers.

香港浸信會醫院 Hong Kong Baptist Hospital

安裝煤氣抽濕機加強七樓病房區域及護士站的濕度控制，以抑制細菌滋生，並確保病人在衛生舒適的環境下接受治療。

At the nurse station and ward area on the seventh floor of the Hong Kong Baptist Hospital, humidity control is enhanced to suppress bacteria growth and provide a comfortable and hygienic environment for patients.



病房不再需要依靠空調系統來調節濕度，因而大大減低鮮風櫃的負荷，讓醫院可節省空調能源開支。

As the ward does not need to rely on the chiller system for humidity control, the burden on the PAU and the cost of running the HVAC are greatly reduced.

病人不會因病房過冷而需要加厚保暖衣物，減少對衫被的需求。

Avoids over-cooling in wards and reduces the demand for clothes and linen.

協康會綜合服務大樓 Heep Hong Society Integrated Service Complex

成功案例
Showcase



作為全港首幢提供一條龍全人教育及培訓的綜合服務大樓，設有室內恆溫水療池(32°C 至34°C)，提供多元化的水療訓練課程，適合不同能力的兒童參加。

As the first centre of its kind in Hong Kong to provide one-stop, whole-person education and training services, the complex is equipped with an indoor hydrotherapy pool. Filled with water at a constant temperature of 32 to 34 degrees Celsius, the pool is used to provide diversified hydrotherapy training for children with different abilities.

室內恆溫水療池內配備抽濕機控制濕度，以保持地板乾爽，讓兒童在安全舒適環境中接受水療訓練。

A desiccant dehumidifier is installed in the hydrotherapy pool area for humidity control and keeping the floor dry to ensure safety.

香港電影資料館 Hong Kong Film Archive



菲林最適合存放於相對濕度 $35\pm 5\%$ 的環境中。大樓的藏品室設有獨立的製冷系統和氣體式乾燥及除酸器，以保存香港電影業的百年瑰寶。

Film is best stored in an environment with 35 ± 5 per cent relative humidity. To preserve Hong Kong's film heritage, there are cold vaults at the Hong Kong Film Archive dedicated to storage. These are equipped with independent air conditioning systems with dehumidification and acidic gaseous removal functions.

H ZENTRE



作為全港首個以健康生活為主題的創新綜合項目，H ZENTRE採用醫療級的鮮風處理程序，以確保室內空氣質素達到「卓越」水平。

As the first development in Hong Kong that puts wellness and health at its forefront, the fresh air supply of H ZENTRE is pre-treated with a medical-grade process to ensure excellent IAQ.

節省安裝獨立抽濕機及接駁通風管道的空間，以及降低工程成本。

Installation space and equipment cost are reduced compared to those for stand-alone dehumidifiers and associated air-ducts.

以煤氣熱水爐配合太陽能集熱器系統將水加熱，節省能源。

Further energy savings are achieved through integrating the solar thermal system with gas water heaters for water heating.

尚鮮街市 MCP

隨着傳染病於濕市場爆發，室內空氣質素已納入室內濕市場的設計標準中。

With the outbreak of infectious diseases in wet markets, IAQ requirements have become part of the design criteria for enclosed wet markets.

煤氣抽濕有別於傳統製冷抽濕的原理，讓通風管道保持乾爽，減少真菌與細菌滋生，有效改善濕市場的整體衛生情況。

The gas desiccant dehumidification process operates independently from refrigerant-based cooling systems, which keeps ductwork consistently dry, thereby reducing fungal and bacterial growth and improving the overall hygiene of the wet market.



香港會議展覽中心 Hong Kong Convention and Exhibition Centre

大會堂為多功能廳，一般以傳統空調系統作室內空氣調節。然而，空調系統會在場館空置時關閉，令水分迅速積聚，容易滋生細菌，並產生霉味。

Conventional systems are generally used for indoor air conditioning at multi-purpose venues such as the Grand Hall of the Hong Kong Convention and Exhibition Centre. Yet, when the venue is unoccupied and the air-conditioning system is turned off, moisture builds up rapidly, accelerating bacteria growth and causing musty odour.

煤氣抽濕可緩解因濕度產生的問題，如損壞場地設施及展品等。

Gas desiccant dehumidification alleviates such humidity-related problems which could lead to building furnishing damage and deterioration of display artwork.

獨立洋房 Luxury Houses

居於獨立洋房的客戶都追求優越的生活，對家中不同設施如衣帽間、按摩池、酒窖以及珍貴收藏品(包括家具、名畫等)的濕度控制日益重視。另外，家中大型設備如升降機和暖通空調系統的耗電量甚大。煤氣抽濕系統除了可以有效提升室內空氣質素，令房間保持乾爽，更可大大減少耗電量並節省能源開支。

In the luxury residence market, there is increasing demand for a superior living standard. Facilities such as walk-in closets, Jacuzzi pools, wine cellars, and collectibles including furniture and paintings all call for effective humidity control. Meanwhile, the demand for electricity is relatively large due to facilities such as lifts and HVAC systems. Gas desiccant dehumidification improves the indoor air quality (IAQ) and keeps the humidity at a constant low, improving the overall room condition while reducing the demand on electricity and bringing about energy savings.





煤氣
Towngas



環保生活每一天
Go Green Every Day



www.towngas.com

工商市務及營業部
Commercial & Industrial Marketing & Sales Department

香港中華煤氣有限公司
The Hong Kong & China Gas Co. Ltd

工商業客戶熱線 / C&I Hotline : 2963 3300
www.towngas.com