

dry facts

...from BRY-AIR

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STRENGTHENING SALES Through Training



At Bry-Air, education never ends! All Bry-Air engineers and representatives are specialists in **application engineering** – trained to solve humidity related problems. Training



A week long refresher training programme was organised by Bry-Air Malaysia in January to update all its representatives with the latest information in the world of dry air. Reps from Singapore, Hongkong, Philippines, Taiwan, Thailand & Australia participated in the programme – each sharing their experience in their area with the other, thereby strengthening whole network.



programmes conducted by factory engineers are held regularly to provide both engineers and representatives new as well as experienced with a thorough understanding of dehumidification and energy recovery – **the equipment and it's applications.**

IT'S SHOW TIME!!

The best of air-engineering equipment – **Dehumidifiers, Plastic Dryers, Loaders, Hoppers and Energy Recovery Systems** – from Bry-Air Malaysia, will be on display at the following shows:-

ITM' 93 JUNE 9-13, 1993	1
SCIENTIF PHARMA SHOW JUNE 26-27, 1993	9
MALBEX' 93 SEPT 14-17, 1993	9
MIF' 93 OCT. 5-10, 1993	3

The Air-Engineers at Bry-Air Malaysia are looking forward to seeing you at these shows!

Did You Know!!

You Could eat Adsorbents.

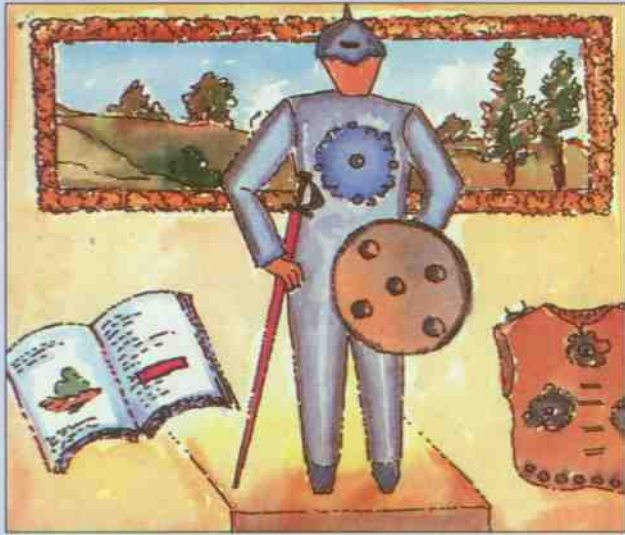
While 'Absorbents' can 'eat' dehumidifiers.

Absorbents like Silica Gel, Activated Alumina, Molecular Sieve are **absolutely safe**. In fact, Silica Gel is used as ingredients in many a food product. As a desiccant for moisture removal, they are ideal – being **stable** at even high RH conditions, **non toxic, bacteria-static and non corrosive**. Their moisture removal capability is **20% higher** than adsorbents' like **Lithium Chloride**. **Adsorbents can be regenerated indefinitely for usage for long time.** **Lithium Chloride** (choice of adsorbents being limited to Lithium Chloride only) on

the other hand, is highly sensitive to **relative humidity**. At high relative humidity conditions it starts '**weeping**' migrating in it's liquid form to the support structure – the wheel, **corroding** it and the duct work in the reactivation side of the dehumidifier irreparably. The desiccant wheel then has to be replaced at a very high cost. In the process side, it introduces harmful **toxic** lithium chloride to the conditioned space. Lithium Chloride also becomes ineffective as a desiccant as it is prone to reaction with gas contaminants present in air. **Dehumidifiers based on the principle of Adsorption are efficient, cost effective and require less maintenance**



PRESERVING HERITAGE



.... in Archives, Museums and Libraries

Books, painting, films, pictures, clothing and all such historical records have a story to tell – the progress of mankind through the ages. Such treasures need to be preserved safely in Museums, Archives and Libraries.

Moisture is the natural enemy of preservation. Temperature and particularly, the relative humidity of the air has a damaging effect on the appearance, behaviour and general quality of hygroscopic material such as paper, textiles, wood and leather. Also, bacterial activity increases in the presence of high humidity.

Dehumidification keeps relative humidity levels low and prevents spoilage from organic corrosion. Though, the dehumidification is necessary to preserve all archival material such as rare books, paintings, *Object d'art* and other priceless treasures, design condition of humidity control varies from material to material.

While Paintings need 40-45% RH at a level where mildew formation can be checked, old books and manuscripts need 35% RH at 55°F to 65°F.

Bry-Air dehumidifiers in conjunction with air conditioners can provide the right environment needed for preservation. Bry-Air dehumidifiers are helping to preserve art treasure in Holland, India and world over. Recently, Bry-Air Malaysia has received a order for dehumidifiers for the Princess's Library, Thailand, where old manuscript and books will be preserved.

Recovering EXHAUSTED ENERGY From Toilets

..... Without it's Foul Odour

Daily, a lot of energy is lost/exhausted out through the toilets of centrally airconditioned buildings like hotels, super markets, offices etc. Architects and HVAC Consultants have always designed aircon systems with exhaust airflows out of toilets, to eliminate the possibility of the foul smelling toilet air being mixed with the supply air stream.



Aircon Consultants hesitate using energy recovery systems to recover waste energy from toilet exhausts due to fear of contamination of the supply air. The desiccant media of conventional wheels tend to transfer the smell causing bacteria to the supply air thus ruining the ambience inside the buildings. **Thus, most Aircon Consultants sacrifice energy efficiency for Indoor Air Quality. Bry-Air's Exclu-sieve Heat Wheel technology has made it possible for the consultants to have Indoor Air Quality without sacrificing energy efficiency.**

The *Exclu-sieve* Wheel media eliminates cross over of bacteria and air-borne contaminants. The *Exclu-sieve* wheel has a unique Molecular Sieve coating of uniform internal pore diameter of 3 angstroms. Since water vapour has a critical diameter of 2.8 angstroms, it is adsorbed in the pores, whereas bacteria pass straight through the fluted media because they have diameter greater than 3 angstroms.

This selective adsorption behaviour, not found in non-uniform pore diameter desiccants, effectively precludes cross contamination from exhaust to supply air stream. This has been conclusively established in both laboratory and field trials by independent bodies. (copies of certificates available on request). **Also, the Exclu-sieve HRW has a in-built purge sector which provides strict separation of airflows.**

Now! Architects, Consultants and Builders can have both-Indoor Air Quality and Energy Efficiency with the Bry-Air Exclu-seve HRW.



WHEN MOISTURE IS TORTURE!!

In this column we will share with you regularly our experiences on major application areas where usage of dehumidification is both extensive and essential.

Dehumidification – A Must for Fertilizer Storage

Humidity makes fertilizer sticky, lumpy and slippery, a total loss to both the manufacturer and the user.

Behaviour of Fertilizer in Storage

Though the use of fertilizer in agriculture is seasonal, it's production specially in modern fertilizer plants, is essentially a continuous process. It, therefore, becomes necessary to store substantial quantities of fertilizer both at factory site and at warehouses close to the consuming areas to facilitate the timely availability of fertilizer.

The storage of fertilizers for a long period brings about detrimental changes in its character and measures to overcome this have to be taken to avoid loss in fertilizer quality.

Most **commercial fertilizers** especially if there is a high concentration of nutrients, are **hygroscopic** and have a high solubility in water. When stored in bulk for long periods, they are subjected to high humidity and varying atmospheric conditions leading to **caking, loss in its properties and strength.**

The fertilizer, when taken out of silos for **bagging**, is very hot and thus, **extremely hygroscopic.** It is essential to control humidity levels in the area during this period for free flow of fertilizer, through auto-bagging machines into the polythene bag without **lumping** and **caking.**

Almost, all types of fertilizers are essentially stored at ambient temperature conditions but the **relative humidity needs to be controlled at 40%.** If the relative humidity goes above 40% the prills being very hygroscopic, absorb moisture causing them to stick to each other, rendering the product



useless. Another side effect of high humidity is that in contact with hydrocarbon, the **Ammonium Nitrate becomes explosive** in nature. Hence, it becomes very important that humidity be kept or held below 40% RH.

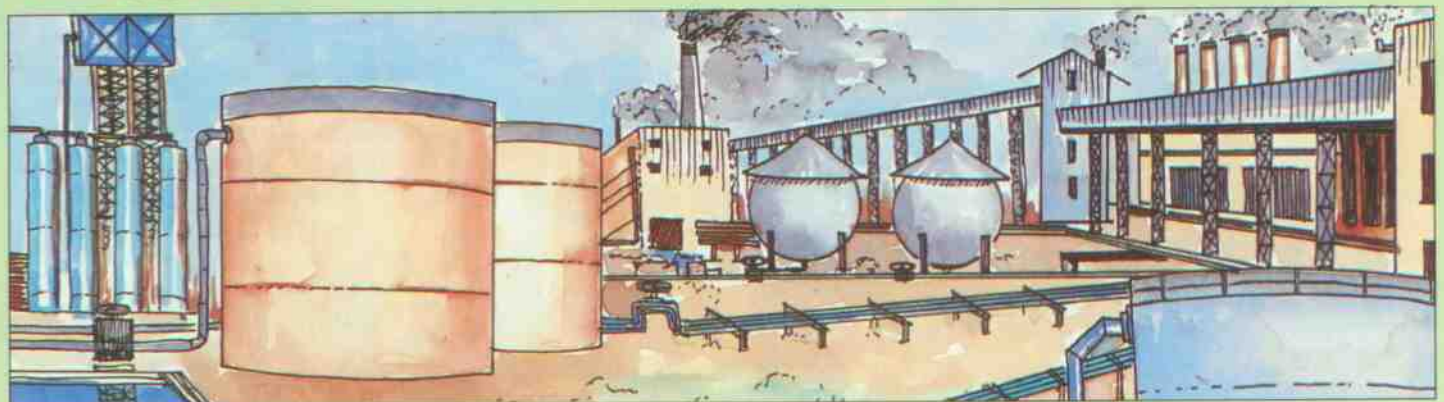
Dehumidification – the Best Solution

To overcome the problems, arising out of hygroscopic nature of fertilizers like caking, lumping, loss in crushing strength and dissolution and even exploding, it is necessary to condition the air inside the warehouses and storage sites, so that the fertilizer does not absorb moisture from the atmosphere.

Bry-Air Dehumidifiers maintain these conditions with ease regardless of the ambient temperature. Bry-Air dehumidifiers remove the moisture through a process of continuous adsorption. The moisture is adsorbed in the dehumidification sector of the unit by the rotating desiccant filled bed and is expelled in the reactivation sector on a continuous basis. Dehumidification systems can be applied to any of the following areas:

- The **Prilling Tower** – low humidity improves the prills.
 - **Bulk storage** – to protect the prills etc.
 - **Bagging operations** – for ease in handling of prills.
- Bry-Air Experience – in a lead position**
Bry-Air has a number of installations to its credit and has acquired the expertise to handle Ammonium Nitrite dehumidification – an economical and successful fertilizer storage technique.

Our ever expanding customer list proves the Bry-Air leadership.



NEW

CONTROL PANEL / COOLER HEAT EXTRACTOR

Maintenance Free Cooling For Control Panels



Modern day electronics and electricals are densely packed in small enclosures. Moisture, dust, oil, dirt and other airborne contaminants can damage sensitive electronic equipments. Sealed enclosures protect the electronics but cause another problem – **over heating** which causes reliability problems and **unnecessary downtime**.

The compact Control Panel Heat Extractor, which is a heat pipe based air-to-air heat exchanger, solves these problems, by cooling and recirculating the clean air inside the enclosure. At the same time, it maintains the enclosure's protective seal against contaminants.

CONTROL PANEL / COOLER HEAT EXTRACTOR

Special features:

- Compared to the standard airconditioner the Control Panel Heat Extractor is ★ 1/6th the size ★ 1/7th the weight ★ uses 1/10th of the energy and ★ works 13 times more efficiently.
- Maintains required isolation of electronics from contaminants.
- No cross contamination. Special sealing arrangement between inside and outside fins.
- Maintenance free.
- Protects sensitive components from dust, moisture and other contaminants.
- Easy to install and retrofit.
- Saves extra energy cost, over 80% heat recovery.

The heat pipe core of the heat extractor transfers heat very efficiently. It absorbs heat generated by the electronic components inside the sealed control panel/ enclosure and transfers it to the cooler end of the pipe outside the enclosure. (the heat extractor is installed half inside and half outside the control panel), where it is blown out by a blower fan. The inside end of the heat pipe core is now cool and the inside-blower fan draws this cool air and blows it towards the heated electronic/electrical components. The electronic components are thus cooled effectively without getting exposed to outside contaminated environment as the two air streams are kept completely separate.



The Energy Recovery Range from the 'Airginers'

- **EXCLU-SIEVE** Heat Recovery Wheel for sensible and latent energy recovery.
- **Incelling** Energy Saving Ventilator.
- **Heat Pipe** based heat recovery unit.
- **CONTROL PANEL / COOLER HEAT EXTRACTOR**

Write for more details for a greater opportunity to reduce energy costs.

Bry-Air

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