

# BRY WORLD

BRY-AIR International Newsletter

USA The Netherlands India Malaysia

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## Easing a volatile situation



VOC Concentration

**Environment agencies in the West have stringent regulations against the high concentration of volatile organic compounds (VOC) from industrial exhausts. This has led to the emergence of several new types of VOC control technologies.**

The focus is now shifting to emission sources with relatively low concentrations of organic compounds. Conventional systems tend to become inefficient and uneconomical with the declining VOC concentrations. The need has, therefore, arisen for a new emission control technique, better suited to lower levels.

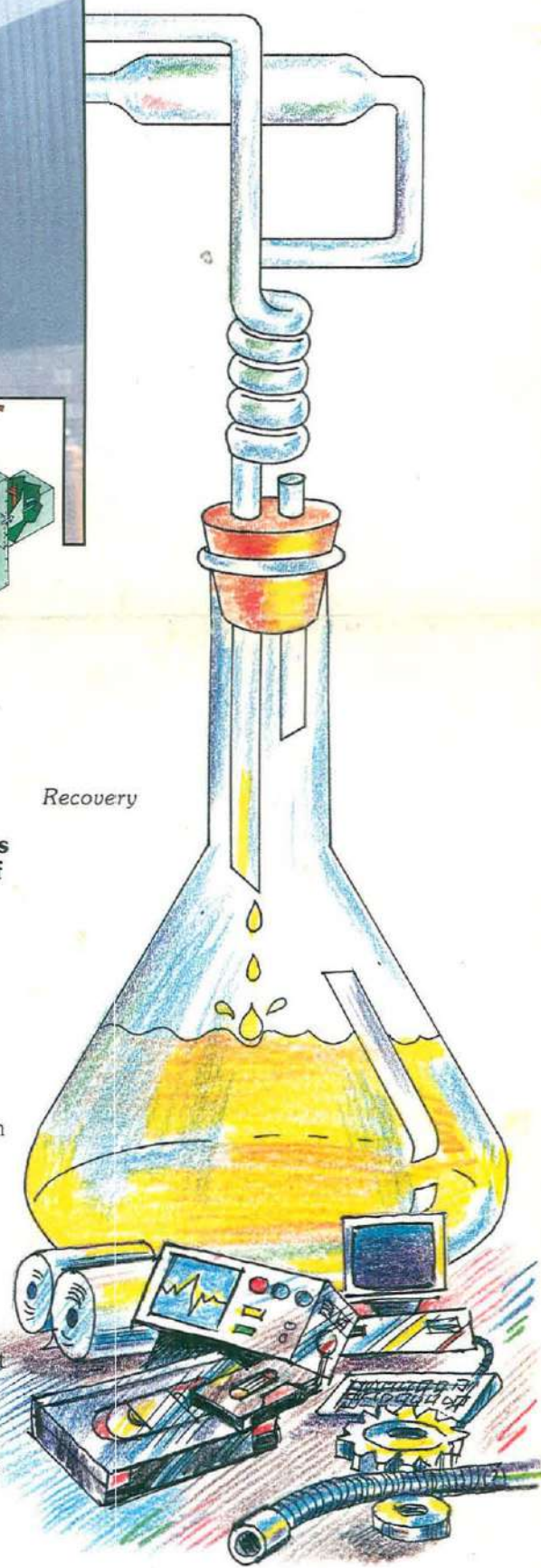
The concentrator beds, which have adsorbed the solvents, are exposed to a heated air stream. The solvent is discharged into a high concentration, low volume air stream which is then fed to either the destruction or recovery unit.

**The system is designed to convert high volume air streams containing low concentration of solvents into low volume air streams with higher concentration. This greatly reduces the capacity requirements and capital costs for downstream recovery or destruction systems.**

This system is more efficient and significantly more cost effective than competitive concentrator systems. It provides a low cost emission control solution and saves up to 50% in operating costs while remaining competitive in capital costs.

Targeted industries include manufacturing companies with paint spray booth installation, as well as manufacturers of furniture, plastic components, electronics, tapes and many other industries which require solvents for production or processing of products.

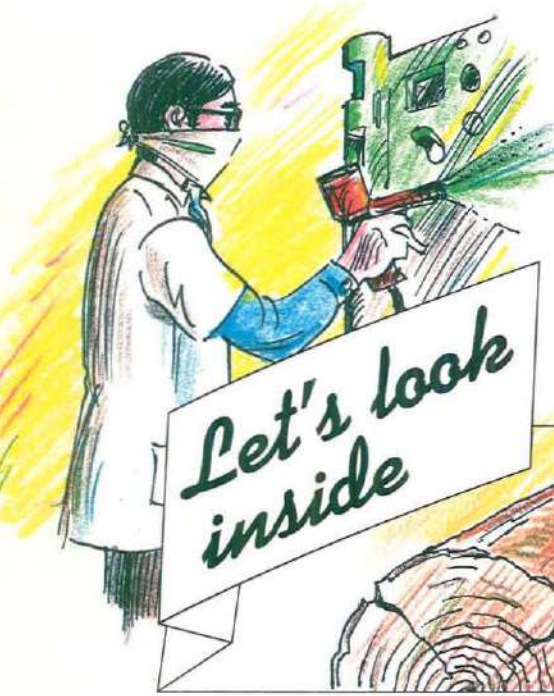
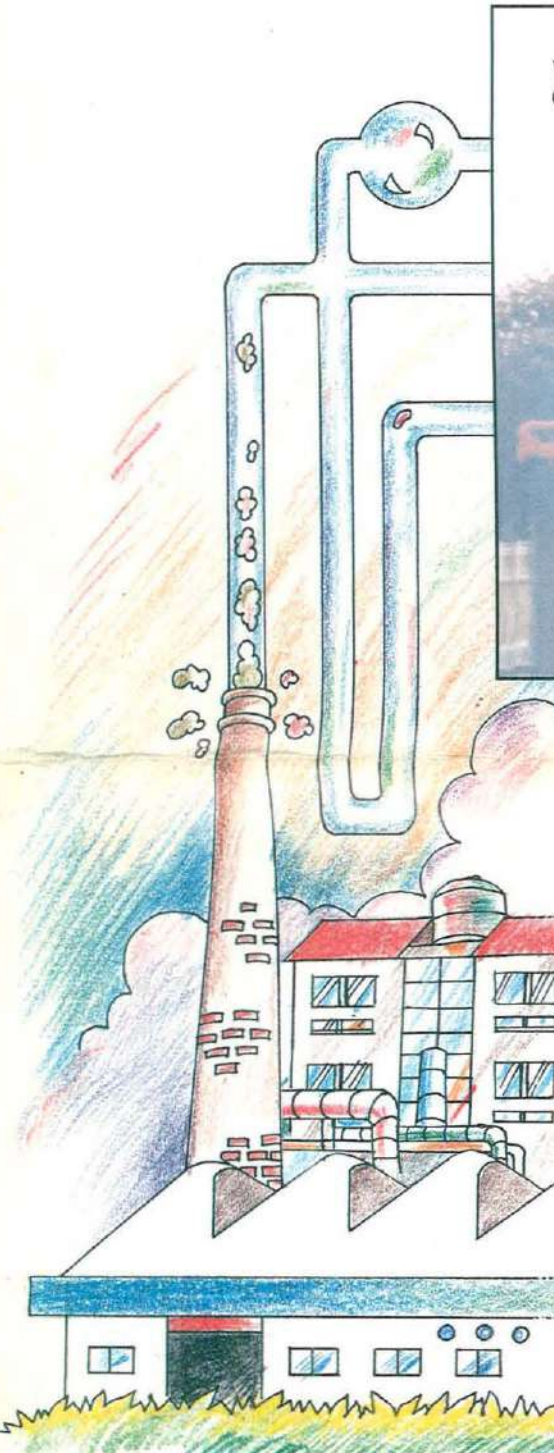
Recovery



### MVB - the high efficiency VOC Concentrator

Utilizing the Bry-Air MVB design, a new, high efficiency, deep bed, rotary concentrator has been developed which produces a five to ten-fold increase in organic concentration prior to the destruction or recovery operation.

The deep bed rotary concentrator, consisting of a number of modular vertical beds, is filled with high activity, low retentivity activated carbon. The activated carbon adsorbs the solvents from the low concentration VOC laden air. The air being exhausted is, therefore, totally cleaned.



**Wood news!  
Good news!**

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**A 'life-saver' on board**

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# Saving for tomorrow



**It is estimated that a third of the world's production of food grains is lost due to poor storage facilities. This is more so in Third World countries where a large percentage rapidly deteriorates in quality before the food grains reach the nearest market.**

Modern silos provide a scientific storage system for preservation on a large scale. Silos are huge, cylindrical steel or concrete storage bins used to store large quantities of grains, food products, sugar, chemicals, fertilizers or plastics.

When the material is loaded into silos, some space is left empty at the top for air circulation. Moisture build-up in the unfilled portion of the silos creates its own problems. The temperature variation outside the silos leads to condensation of water

vapor inside the silos resulting in:

- Corrosion of the silos
- Caking and agglomeration of the hygroscopic material stored inside
- Increase of microbial activity leading to spoilage of dry, stored material.

The conventional way to avoid moisture build-up inside the silos is to pressurize them with hot air from the bottom. This preserves the stored material but is very expensive due to high power consumption. In addition, the use of air at a high pressure may cause attrition leading to product spoilage and damage.

## The 'Bry-Air' way to keep moisture away

Bry-Air Dehumidifiers provide an effective solution for keeping air inside the silos dry.

Regardless of ambient conditions (night or day), the Bry-Air Desiccant Dehumidifier provides dry air inside the silo with a dewpoint lower than that of air outside the silo. This eliminates the possibility of condensation and safeguards the stored material in the silo.

For storage of some food products, such as flour and sugar, a lower dewpoint may be required. The air is then pre-cooled before it enters the dehumidifier. Temperature and humidity are controlled electronically. High efficiency filters eliminate carry over of dust and powder.

Multiple silos can be serviced by a single dehumidifier, if required.



The scientific storage of grains and food in silos provides complete protection from temperature, moisture, insects and pests; a truly viable and productive means of **saving for tomorrow.**

## Chemical warfare Target : Moisture



presence of moisture, coagulates and does not flow freely. It must, therefore, be stored in a low relative humidity area.

**Calcium chloride**, used as an additive in the manufacture of white cement, is highly hygroscopic. In the presence of high relative humidity it converts into a liquid state, becoming ineffective for further use in the process. Storage of calcium chloride at less than 30% RH in ambient conditions avoids absorption of moisture and liquefaction.

**Phenyl glycerine**, in the presence of moisture, reacts with water and emits MCL fumes which are corrosive in nature. A relative humidity of 10% to 5% at  $77 \pm 2^\circ\text{F}$  must be maintained in the storage and packing areas.

Many chemical raw materials, intermediates or finished products are corrosive and toxic, and their composition may change in the presence of high moisture.

Humidity control, with or without temperature control, becomes imperative in these and many other situations. Bry-Air designs systems for humidity and temperature control for safe, trouble-free handling of chemicals, eliminating the hazards of moisture damage.

**Titanium dioxide** is industrially important as a white pigment for paints because of its high opacity, relative chemical inertness and comparative abundance. It has replaced all other white pigments in the paper, plastics, rubber, textile and vitreous enamel industries.

In bulk packaging and conveying of titanium dioxide, very low humidity and temperatures are required.

**Gypsum cement**, used as a raw material for tire molds, is highly hygroscopic in nature and, in the



## Best foot forward

Florind Shoes Ltd., India are one of the largest exporters of leather shoes to the U.S.A.

One of their shipments, containing a few thousand pairs of shoes was found to have fungus growth on the soles when the container was opened in the U. S. The fungus growth had completely ruined the finish of the leather. Bry-Air engineers were asked to provide a solution.

Investigations at the Florind plant revealed that although the shoes were manufactured in an air-conditioned atmosphere of  $75^\circ\text{F}$  at 25% RH, during monsoons, the moisture content on the uppers was found to be 12-15% and on the soles 18-23%. Extensive testing in Bry-Air's environmentally controlled lab revealed that to eliminate all chances of fungus growth, the final moisture content of the shoe upper should remain constant at 8% and that of the sole at 12%.

Bry-Air installed a dehumidifier in Florind's pre-drying room which maintained the humidity at such a level that the leather would have a moisture content between 8-12%. The packaging and storage areas were also dehumidified and conditions were maintained at the same level as the manufacturing area in order to prevent moisture regain. Once the shoes were packed in airtight containers in the conditioned

space, the problem of fungal growth was completely eliminated.

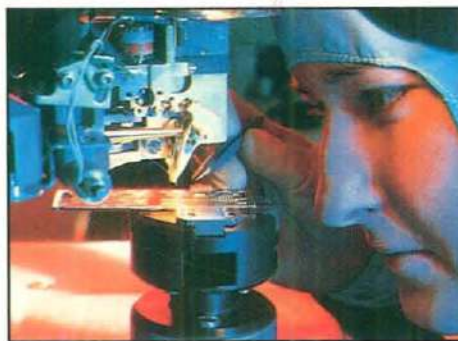
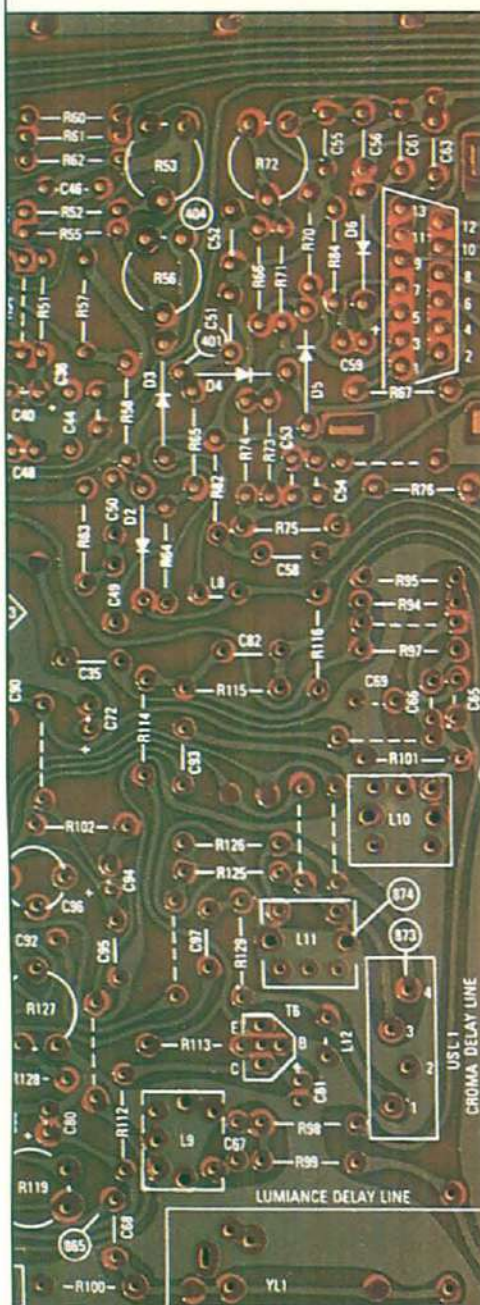
### Moisture - the breeding ground

All organic materials, such as leather, wood and paper are highly hygroscopic and tend to absorb moisture during storage. Excessive moisture results in increased microbial activity. Mold, mildew and fungi germinate when relative humidity is above 40-45% in the storage area. This not only results in decomposition but also in mechanical weakening of the product, apart from spoiling its sheen and quality.

Bry-Air Dehumidifiers have been used extensively to provide the ideal conditions for manufacturing, packaging and storage of finished leather products, preserving the finish and quality, allowing the exporters to put their **best foot forward.**



# Circuiting all problems



For 20 years, the information revolution has been built on the sand-silicon based chip. Each year, by cramming more circuits on a memory or microprocessor chip, engineers have made computing technology cheaper, more plentiful and more adaptable to new uses. Smaller has always been better, yet never good enough. With the chip becoming the size of a thumbtack, the size of printed circuit boards, or PCBs, is also getting smaller.

The circuit board in its simplest form is a piece of insulating material, such as epoxy or phenolic resin, on which chips (integrated circuits) and other electronic components are mounted and interconnected to form a circuit. Most modern circuit boards use patterns of copper foil to interconnect the components. The foil layers may be on one or both sides of the board and, in more advanced designs, in several layers within the board.

Photo-sensitive polymer compounds called photo-resistors are applied to the surface to selectively mask circuit

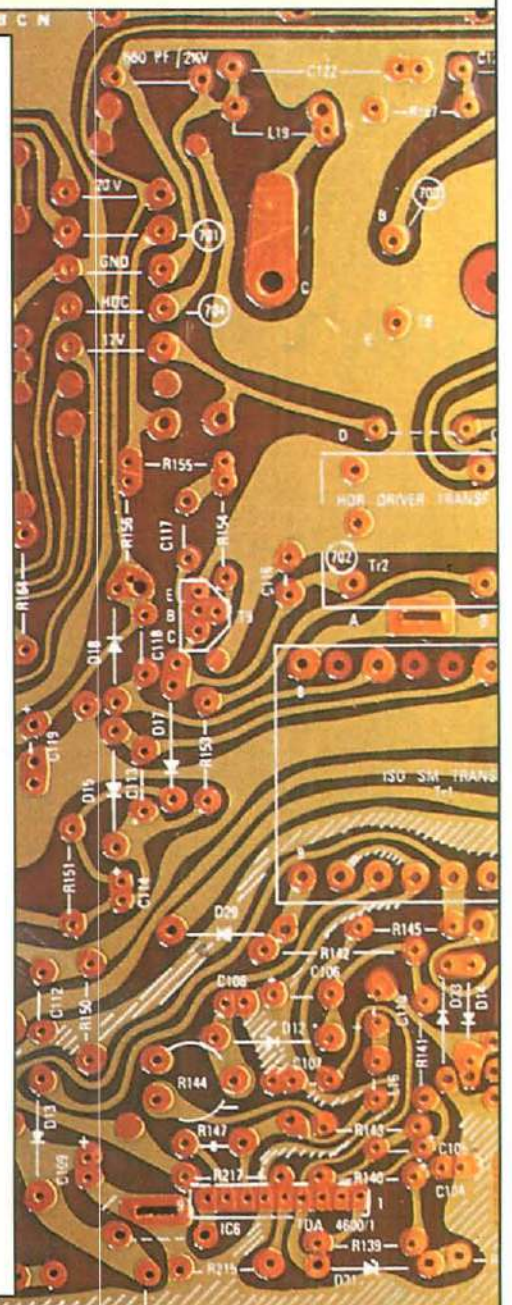
lines for the etching process. The hygroscopic nature of these compounds can cause the adsorbed moisture to make cuts in the bridging of the microscopic circuit lines, resulting in circuit failures. The relative humidity of air in the photolithography clean rooms where etching is done is, therefore, maintained at controlled levels.

Moisture control is also absolutely essential when quartz crystals are incorporated with the printed circuit boards. The quartz crystal boards, after assembly, are put through an aging process during which time the humidity level must be carefully controlled to prevent the crystal from adsorbing water vapor.

Exposure to high humidity can lead to corrosion on the surface of the circuits. This is known as microscopic corrosion. Even minute layers of corrosion can increase electrical resistance and decrease capacitance, affecting performance.

Excessive moisture, therefore, causes adhesion failures, surface defects and decreased performance. In fact, the smaller and denser the microcircuit, the larger the problem in performance.

**Desiccant dehumidifiers provide the ideal low humidity environment in the manufacture, assembly and storage of these precision, high quality electronic printed circuit boards, circuiting all humidity problems.**



## A royal task

*This is the story of a princess who was faced with a dilemma of how to preserve her collection of priceless books from ageing and harmful effects of moisture/humidity.*



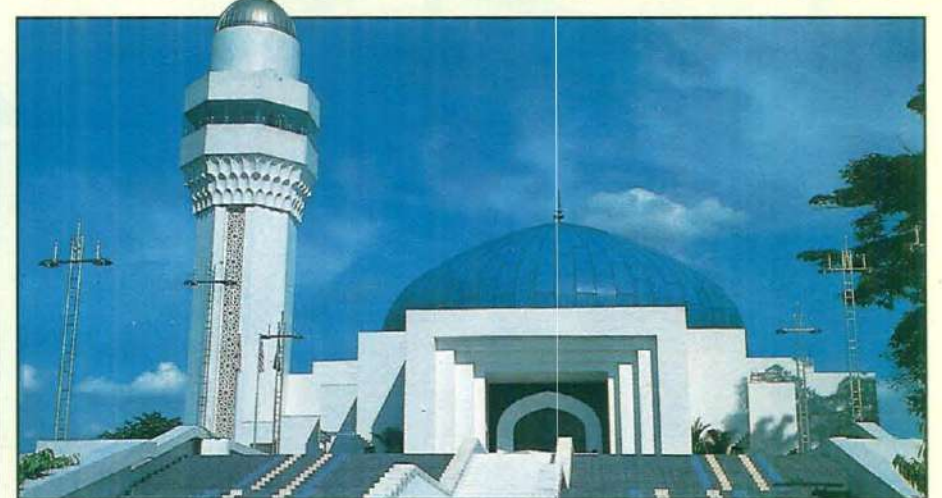
This is not a fairy tale, but a recent problem faced by the Royal Princess of Thailand. An avid reader, she has a vast collection of books, some of which date back 200 years. To safeguard her treasures, a library was recently built for her personal use. The Royal Princess Library, situated on Rajechddumnie Road, occupies two buildings admeasuring 3,200 square metres. To maintain the ideal environment for the books, humidity and temperature control was designed for 50% RH at 75°F. 38 Bry-Air compact dehumidifiers were installed to maintain the correct humidity inside the buildings.

Books, historic documents, photographs and art works are all hygroscopic because they have paper as the organic base material.

When they absorb moisture, they provide a base for micro-organisms to multiply and breed, causing irreparable damage. Bry-Air dehumidifiers provide a low humidity environment which prevents microbial attack. The dry air is often enough for preservation without necessarily involving temperature control.

Large and famous museums, churches and libraries use only dehumidification without temperature control to save and preserve the priceless treasures of the world.

## Star of the show



**The National Planetarium, Malaysia stands majestically on a hill, symbolically reaching for the stars. It is the new centre for space science education.**

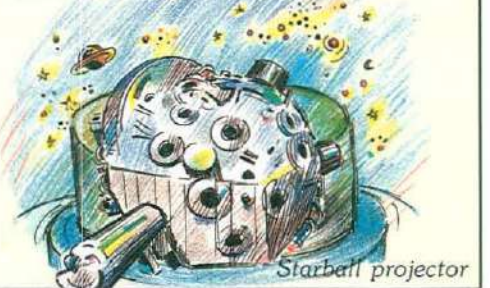
The Planetarium has a sophisticated, fully computerised telescope for a view of the galaxy, and a large frame projector to project images on a dome screen. The equipment must be stored and operated under carefully controlled environmental conditions.

While designing the air-conditioning system it was noticed that both, the sensible and the latent loads were high during the day because of the ambient conditions as well as due to the high volume of fresh air intake necessary for the comfort of visitors. At night, only the latent load was high, and only humidity control was relevant. Therefore, Bry-Air dehumidifiers with a smaller chiller met the requirement. This lowered the operating cost considerably as compared to the reheat system

originally contemplated. The additional capital cost could be recovered through savings in three years.

Dehumidification, in combination with air-conditioning systems to control humidity, has tremendous benefits in areas where the moisture loads are higher as compared to the sensible heat loads, or where they peak at different times. It saves on operating costs too.

**Supermarkets, hospitals, health clubs, hotels, auditoriums and nursing homes are all potential areas in which desiccant dehumidification can be used to advantage.**



# Plast

The latest composition in

## Don't let mold sweating slow you down

A large custom blow molder in California was getting craters and pitting on his bottles due to excessive mold condensation. Result  $\pm 2\%$  to 17% scrap rate.

A custom molder in New Jersey was running 10 injection blow molding machines. Mold condensation at 40°F water temperature was heavy, causing safety and quality problems.

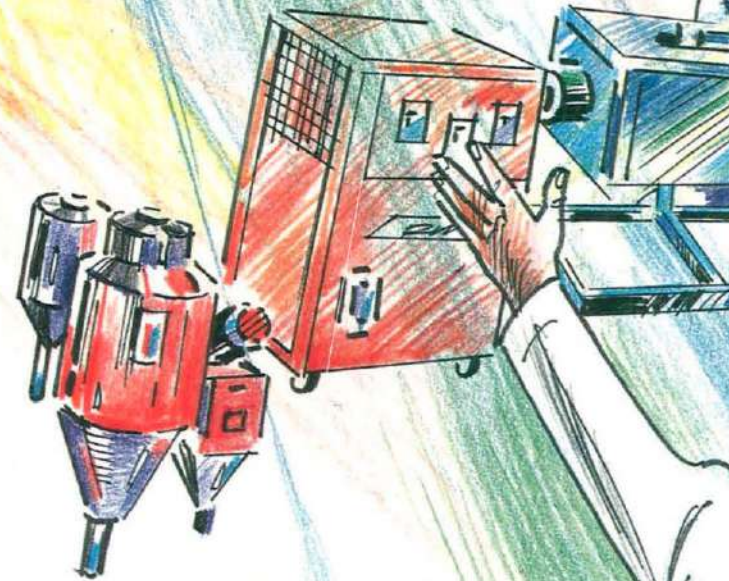
Can simple mold sweating cost as much as 30% in increased cycle time? Yes, when a mold sweats, so does the molder. Chilled water, commonly used to significantly reduce the cycle time of a job can cause parts to be imperfect, structurally or cosmetically, thereby increasing scrap.

The usual method for correcting this condensation condition has been to raise the mold temperature, thereby increasing the cycle time and decreasing production – an unattractive solution to a continuing problem.

### What's the solution?

An eminently attractive alternative is to blanket the mold surface with a constant supply of dehumidified air at an appropriate dewpoint, below that of the mold surface.

This is achieved with the help of an adsorption atmospheric dehumidifier during high humidity periods resulting in greater safety, shorter cycle times, less scrap and, therefore, increased profitability.



The Bry-Air range of plastics auxiliary equipment is skilfully tuned to work in perfect harmony with your molding machines. From resin dryers and hoppers, to loaders and mold dehumidification systems, Bry-Air manufactures equipment to meet the exacting needs of today's plastics

## Brain Power!

What would you call a machine which wakes up automatically, runs through an intelligent self-diagnostic test, perfectly dries 20 to 625 lbs of plastic resin per hour, calls out to you when required and shuts off when it senses any danger? We call it the BAS 1000 Dryer Diagnostics System.

Yes, with the introduction of special microprocessor controls, the RD Series Plastics Dryer can now programme a start / stop schedule for a full week up to 4 settings per day. The self-diagnostic test triggers the alarm for attention, and displays the diagnostic message on the LED panel. The dewpoint meter and PID temperature controller ensure accurate dewpoint and temperature control which also contributes to energy savings.

This brain power, combined with the reliable heart of the dryer makes the RD Series Plastics Dryer the ideal machine with a mind.

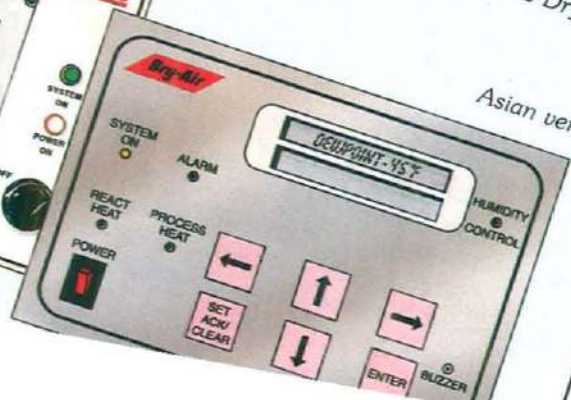


Bry-Air RD Series Plastics Dryer

Asian version



US version



## Bry-Air Auto Load

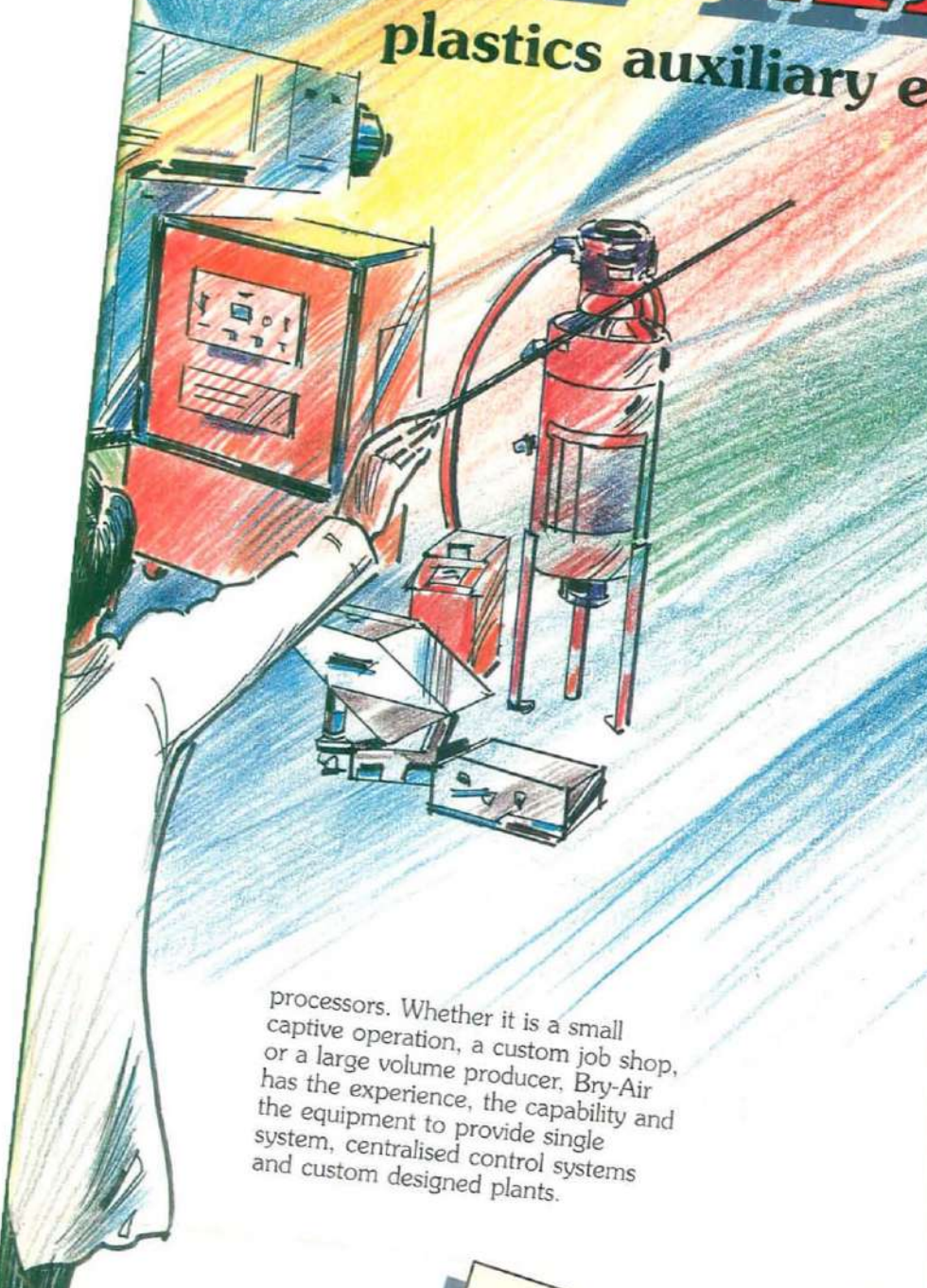
Bry-Air Automatic Vacuum Loaders with new microprocessor controls offer large savings to plastics processors in terms of man-hours and material by automating the transfer of plastic pellets from shipping containers and storage bins to the processing machine.

The load control system of a Bry-Air Auto Loader is the most advanced in conveying technology. It offers options for changing / selecting set time for conveying and ratio mode. It also provides trouble-free, automatic, dustless loading of granular plastic resins up to 1,700 lbs per hour with a horizontal feed distance of 5 m and vertical height of 3 m.

**Bry-Air Auto Loaders take the load off your back!**

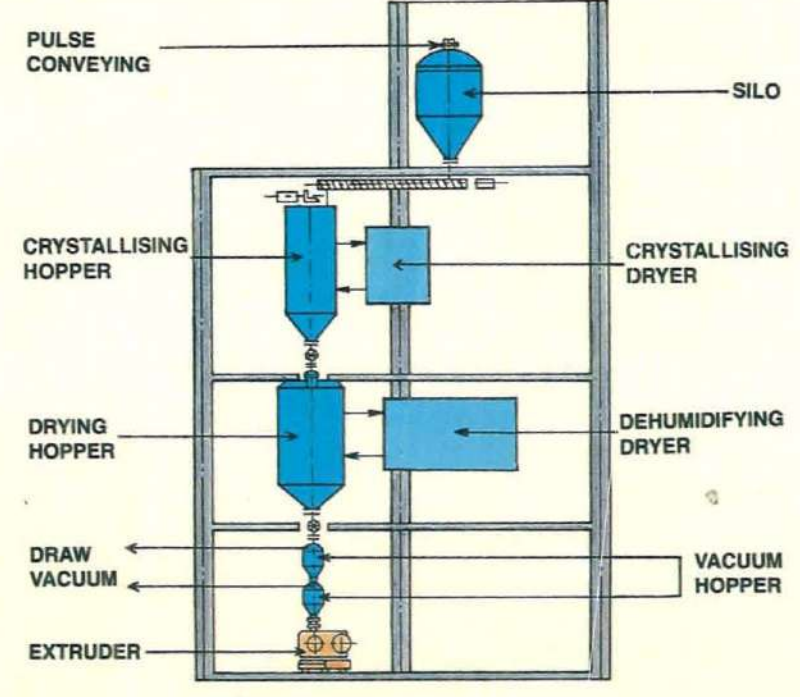
# Harmony!

plastics auxiliary equipment



processors. Whether it is a small captive operation, a custom job shop, or a large volume producer, Bry-Air has the experience, the capability and the equipment to provide single system, centralised control systems and custom designed plants.

## Plans crystallize in China



The Shanghai Chemical Plant, one of the largest manufacturers of X-ray films for the medical industry in China, uses amorphous PET as the raw material. Conversion of amorphous PET to a crystallized dried PET polymer for use in making film is often undertaken by the user.

A custom designed crystallizer dryer system was designed by Bry-Air Systems to meet the requirements of the customer. It included a crystallizing hopper, fed with dry air from a crystallizing dryer. For the actual drying process, a drying hopper with  $-40^{\circ}\text{C}$  dewpoint air from a desiccant dehumidifier was provided.

Bry-Air's packaged solution not only meets the crystallization and drying needs of PET but also provides the PET users a single source responsibility.

## Bry-Air Hopper Dryers



The Bry-Air Hopper Dryer (or, Hot Air Dryer) caters to the small molders who essentially use the non-hygroscopic resins. It removes the surface moisture by circulating hot air around the plastic resin. It can be either mounted on the molding machine or installed at the side.

A unique automatic temperature controller can be preset to any temperature up to  $140^{\circ}\text{C}$  allowing for drying at the correct temperature for the specific resin.

With options like a 7 day ON/OFF programmable timer available, the HAD series Hopper Dryers provide the sophistication, ease of handling and uniform drying of resins. All these features are also available in our dehumidifying dryer range - the RD Series, for tougher drying of hygroscopic materials.

## Pet Drying



Momentum is growing for Polyethylene Tetrathalate (PET) bottling applications around the world because of its established recyclability and new developments in designs.

PET, in the crystalline form, absorbs moisture from the atmosphere (like a desiccant) - as much as 0.6% by weight. This needs to be reduced to less than 40 parts per million. Carefully controlled drying of PET is thus an essential pre-requisite to final processing.

Drying of PET is complicated because of its sensitivity to temperature. The moisture pick-up increases with increasing temperature. And above the melting point of PET, the water present rapidly hydrolyses the polymer, reducing its molecular weight and associated physical properties.

PET drying also involves removal of moisture from the core. This is best achieved by using a low dewpoint, low temperature air stream which, besides maintaining the partial pressure difference also provides the necessary heat transfer.

### Bry-Air PET drying package

Bry-Air Plastics Dryers with continuous  $-40^{\circ}\text{C}$  dewpoint air stream in combination with drying hopper and extruder provides a complete packaged solution for PET drying.

# Wood News ! Good News !

## Now, season wood in any season with Bry-Air wood dryer



The biggest advantage of the wood dryer is that it is a compact, mobile, self-contained, modular unit combining all components into a single system.

It has the fastest drying rate (often less than 4 days) without product spoilage. The customer requires less inventory of dry-seasoned wood and the dryer has no burning fuel or boiler, which makes it totally pollution-free.

### Unique features which provide extra benefits

The uniform laminar air flows through the wood stack with a provision for reversal, ensuring uniform drying. The programmable wood seasoning cycle with automatic controls provides a wide choice of drying parameters as per specific needs.

The energy saving device is integrated into one single unit to make it user and environment friendly.

Wood drying is a complex and specialised technology. Bry-Air has spent several years of research and development and closely worked with the Forest Research Institute to design an integrated approach to effective wood seasoning without the inherent flaws of the other methods. However, the system's performance is dependant on the skill of the operator to understand the characteristics of each species of wood to attain the optimum drying.

The product is certified by the Forest Research Institute and is ideal for all sorts of wood drying applications.

Wood enjoys a prime position as an industrial and consumer raw material, placing heavy demands on this slow-growing (although renewable) resource. In addition to this, most timber species are non-durable, placing even heavier demands due to a more rapid replacement cycle. This can be checked only through improved technology concerning wood utilization and conservation.

### Scientific Wood Drying

Timber, immediately after felling, has a moisture content ranging from 50% to 200%. This must be brought down to about 15% before use because green timber is liable to be attacked by various micro-organisms, and uncontrolled removal of moisture from the wood causes various defects, such as checking, splitting, warping, etc. All these, which can lead to substantial losses in wood, prior to use as well as in service, must be controlled.

### Wood Seasoning

Wood Seasoning is a term normally used for scientific drying of wood under controlled conditions to avoid the above defects and ensure steady performance.

There are various conventional and non-conventional seasoning techniques in vogue for the drying of wood. Natural drying, though the simplest, suffers from unpredictability, large stock requirements and inability to achieve low moisture contents.

Artificial drying in steam kilns is energy intensive and is not pollution free.

### The Bry-Air Wood Dryer - Conservation through improved technology

The Bry-Air Wood Dryer is based on the desiccant dehumidification principle of adsorption. The Wood Dryer achieves an accelerated yet acceptable drying rate at a reduced cost to dry timber from virtually any moisture content to the desired final moisture content.

### Drying Wood ... in the Bry-Air Wood Dryer

The Bry-Air Wood Dryer consists of three major components :

- The Dehumidifying Dryer
- A well-insulated drying chamber
- Specially designed air distribution system to optimise air flow between the stacks.

**Step-1** - The wood to be dried is stacked on the mobile trolley and the loaded trolley is 'rolled' on to the specially designed rails into the drying chamber. Once inside, the door is locked and the unit switched on.

**Step-2** - The Bry-Air Dehumidifier built into the system increases the vapor pressure difference by removing the moisture from the air surrounding the wet wood in the chamber. The moist air is drawn into the dehumidifier where the moisture is

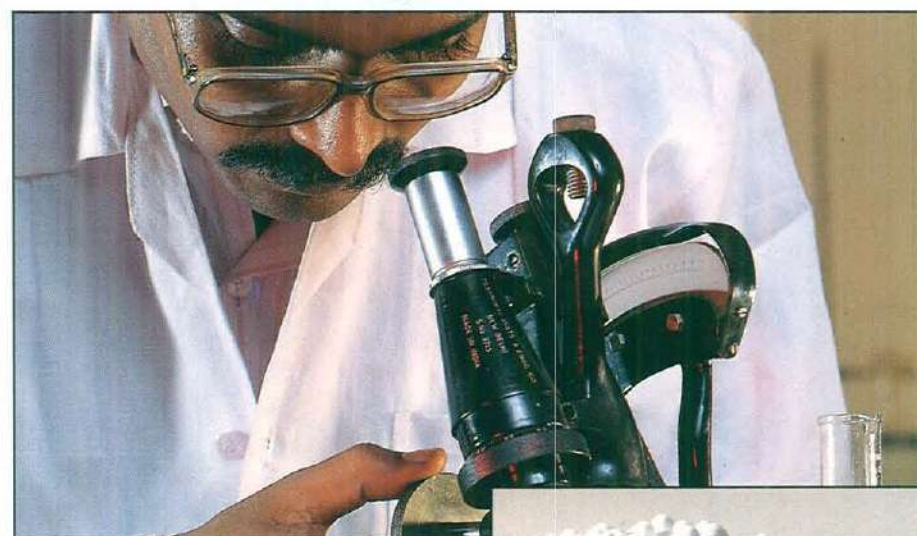
adsorbed by a rotating desiccant bed and ducted out. The dry air flows back to the chamber, increasing the vapor pressure difference, and thus forcing the wood to give up its moisture to the dry surrounding air.

The drying process is enhanced by uniform air circulation within the stacked wood and built-in pre-heater for heating the circulated air.

**Step-3** - The automatic sensor controls the entire drying process, switching off when required. Dryness is thus achieved while preventing damage, such as shrinkage, cracking, etc. which result from over-drying.

## Bryisorb-800

### The New Super Desiccant



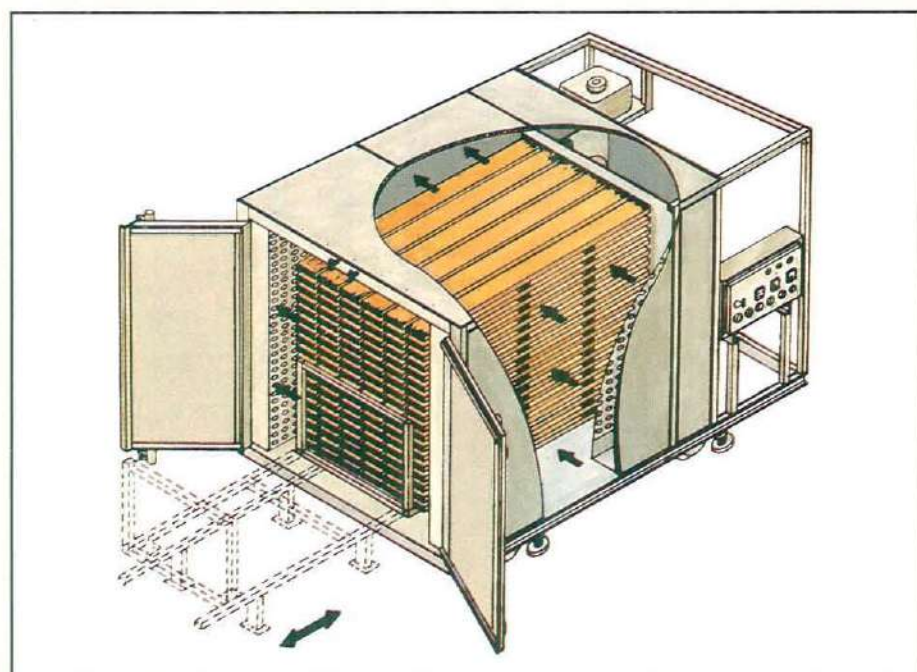
Would you believe that there is a granular silica gel that can be :

- **Totally immersed in water**, and
- There is no deterioration of the desiccant even after twenty-four hours of soaking in water
- There is no attrition, and performance remains the same after reactivation

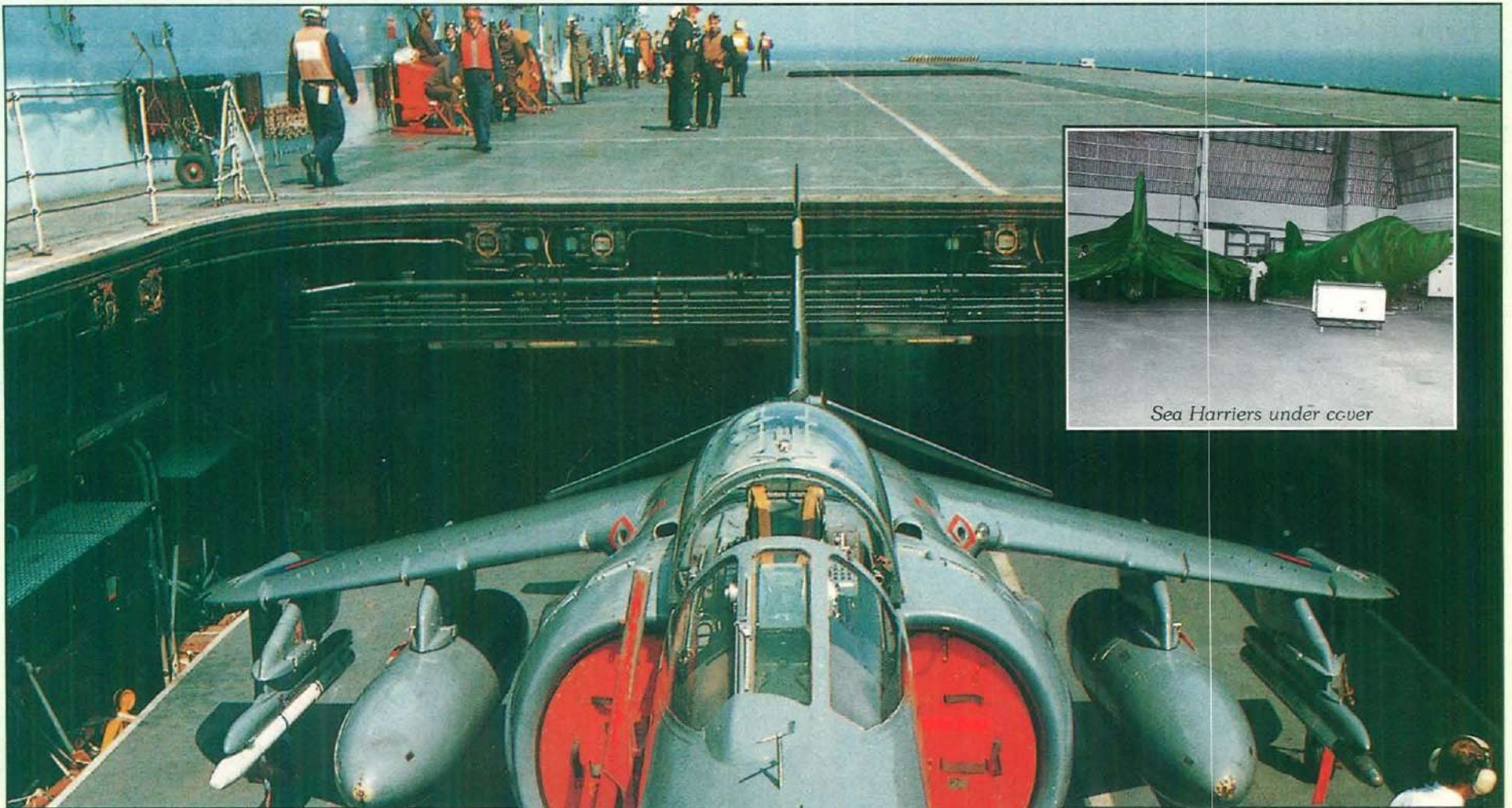
### Yes, this is the new super desiccant Bryisorb-800!

Silica gel, which can adsorb six times its weight of water vapor, has the inherent limitation of breaking up in the presence of free water droplets. In pre-cooling applications, the air often leaves the chilled water or

direct expansion (DX) coil at saturation point. Although pre-heater is usually installed immediately after the coil, it is possible that water droplets could come in contact with the desiccant. Through the use of Bryisorb-800 this problem has been eliminated. **100% saturated air can now be fed directly into the dehumidifier without attrition of the desiccant.**



# A 'life-saver' on board



Sea Harriers under cover

The 'Sea King' helicopter and 'Sea Harrier' aircraft, both ship borne aircrafts form an important part of Naval Aviation. However, prolonged exposure to the moisture and salt-laden sea air takes its toll by hastening the corrosion process. In the aviation industry, the failure of structures, components and systems (despite high levels of sophistication) has been attributed to corrosion.

A survey carried out on Sea King helicopters showed that in spite of regular daily and weekly preventive maintenance, the corrosive effects were visible on the main rotor blades, landing gear system, wheel bearings, shock absorbers, chrome-plated areas, tail nylon bush and fitting assembly. This corrosion could lead to catastrophic failures. It is not an exaggeration to say that the primary function of naval maintenance was to combat corrosion until Bry-Air offered an effective solution to preserve material against corrosion.

## The Corrosion Phenomenon

Many materials corrode, changing from one form to another through chemical reactions. Humid air, salts and pollutants, sand, dust and ultra violet light all lead to deterioration and corrosion of equipment. Corrosion is a chemical reaction which is catalysed and accelerated

by moisture. The moisture, when deposited as dew on the equipment, hastens corrosion of metals and electrical contacts, reducing electrical resistance of insulators and wire harnesses, and spoiling surface finish.

At sea, the problem intensifies in the presence of salt-laden moist air, corroding not only ferrous metal but glass, rubber and electrical components.

Defence hardware, software and ammunition are all high value items and must be in a battle-ready condition at all times. The corrosion and moisture damage reduces the 'Mean Time Between Failures' (MTBF). This impairs the availability of equipment at short notice. Extensive manpower required to provide preventive maintenance is also uneconomical and time consuming. Therefore, the need was felt to provide a better alternative for preservation and storage in a controlled environment.

## The Bry Clad System

The Bry-Air flexible barrier system fulfills a long standing need for

**maximum reliability with minimum effort at an affordable cost.**

The system is based on the fact that corrosion can be prevented by protecting the equipment with a suitable barrier and the use of a dehumidifier.

Extensive field trials and actual usage show that a controlled environment at less than 40% RH is the optimum for preservation of military hardware. This is achieved through Dynamic-Solid desiccant dehumidification.

The Flexible Barrier System (FBS) that was used to preserve the Sea Kings and Sea Harriers consisted of a flexible cover which had the inherent characteristics of adequate resistance to moisture, oil, flame, fungus, rodents, ultraviolet rays, cold temperatures, good structural strength, flexibility and reusability.

The cover was tailored to fit the contours of the aircraft. Once encapsulated within the cover, the aircraft was sealed with a special closure lock to prevent moisture permeation. The dehumidifier was then hooked up through an air distribution system to the cover to continuously feed and flush the aircraft with dry air.

Corrosion was thus effectively prevented. Such a system has the advantage of maintaining the equipment in a high state of readiness without the need for daily maintenance.

Corrosion control and preservation through dehumidification and Flexible Barrier System (FBS) is ideally suited for the preservation of hardware, aircrafts, helicopters, aero engines, combat vehicles and materials in storage sheds.

Temporary storage with barriers, individual / clusters of aircrafts, helicopters, vehicles, equipment in any form and in any climatic condition are suitable for FBS.

**The preservation approach has been found to be the most effective and economical in eliminating corrosion and deterioration.**



# Safe landing

**Sky diving and parachuting have undergone tremendous innovations, leading to sophistication in terms of material and designs of parachutes for ensuring a safe landing.**

The military, however, were faced with the problem of decay of the base fabric of the parachute from mold and fungus during storage due to condensed moisture.

Parachutes are normally wet after the jump because water vapor condenses on the fabric of the chutes. The damp fabric provides a breeding ground for fungus and mold growth. The parachutes were being dried by the conventional method of hanging them from

hooks like 'coats on hangers' in huge rooms with high ceilings and fans. The process was not only time consuming but did not entirely free the parachutes from moisture which invariably remained trapped in the folds.

Bry-Air offered the solution by maintaining the drying and storage areas at 40% RH at 30°C, thereby continually surrounding the parachutes with dry air.

**A simple but money saving solution!**

# Mapping out a great future

## Bry-Air expands in Latin America

What could a seed store in Afghanistan, a vintage car garage of the Sultan of Brunei, a chemical factory in China, a plastic processor in Ecuador, a shipyard in Denmark and a library of the Royal Princess of Thailand have in common?

### The Bry-Air Dehumidifier!

Not only do the Bry-Air dehumidifiers provide solutions to moisture / humidity problems in a wide range of applications, but they are also available throughout the world through a network of agents, representatives, dealers and direct sales offices in all parts of the world.

### The Latin American network

The network of Mexico, Central and South America is perhaps the largest; covering 26 representatives in 16 countries. These booming economies include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru and Venezuela.

The Latin American economies have been growing as a result of NAFTA (The North American Free Trade Agreement). It has provided a big boost to all manufacturers due to increased trade. The economies of

Colombia, Brazil, Chile, El Salvador and Guatemala are growing rapidly. The lowering of import tariffs and improving quality of their exports, allow them to compete on a global basis.

As a result of all these measures, Bry-Air's exports to Mexico and Latin America have doubled in the last three years.

**In the future, Bry-Air's presence in these markets will continue to grow. Bry-Air representatives in Latin America are trained to ensure that customers get the best service and support in the world.**



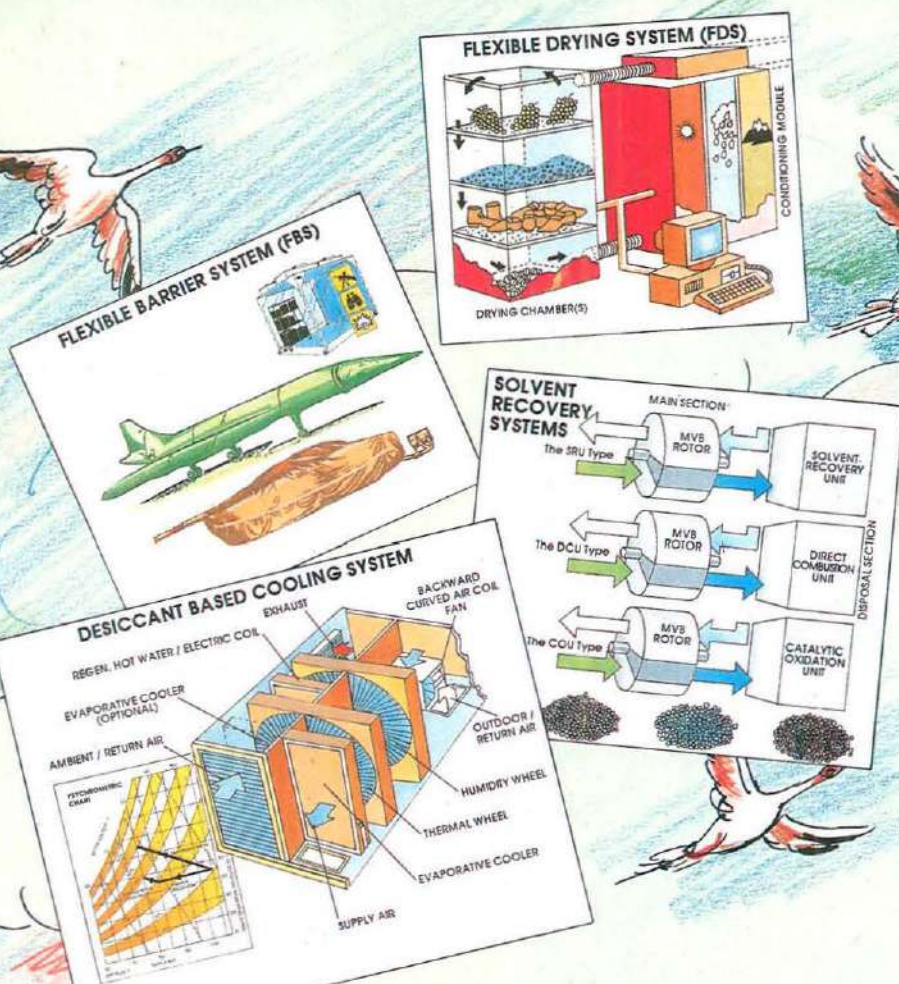
# Plans for the future take wing

As a pioneer in airengineering, Bry-Air has maintained the initiative, searching for new ways to bring the benefits of research to satisfy customer needs in the field of environment control, product drying and energy recovery.

Rapidly changing technologies in the military, industrial and commercial worlds are placing challenging demands on the environment control industry. Predictable, practical solutions are no longer sufficient. Individual tailor-made solutions involving extensive engineering and design are what is required today. Bry-Air's standard and custom-made products are well suited to meet the needs of the industry.

Expanding on the core competency of the company in the fields of desiccants, drying and energy recovery, Bry-Air is working on developing several new products:

- Desiccant-based cooling systems are the focus of



Research and Development. R&D is working to convert the technology in this field to a workable model to meet the demand for tomorrow.

- Solvent recovery is another field being addressed by Bry-Air's highly talented and innovative research team.
- Indoor air quality (IAQ), a matter of grave concern in this decade, is also of great interest to Bry-Air. The heat recovery wheels and energy saving pre-conditioners are addressing this need for large commercial buildings.

As the requirements for specialized air-conditioning, environment control and dehumidification systems become more complex, the need to have vision to identify and solve the problems of the future becomes even more essential.

**At Bry-Air, plans for the 21st century have already taken wing.**



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