



Dry facts

.... From Arctic India Sales

January-February-March, 1989

Vol. IX No. I



Thank you for listening to us!!!

When the dusty winds of April start blowing and summers are upon you, the chill of January is forgotten and also seems distant, the events of January and February. The March closing seems to overshadow all other events of significance. However, in spite of the fact that we closed on a very healthy note, we want to share with you our moments of pride and achievements.

You are important to us and hence we would like to keep in touch with you regularly. For that, it is important that you send us back the enclosed information card duly filled in at the earliest!



Bry-Air R&D gets Official Recognition

In February, Bry-Air R&D lab. received the official recognition of recognized research and development lab. from the Department of Scientific and Industrial Research, Ministry of Science and Technology.

This is, indeed, a matter of great pride to us. Modelled on the same lines as the research lab at the parent company at Sunbury, the lab is equipped with the most sophisticated instrumentation and can simulate the most stringent environmental control parameters.

The lab will help immensely in certification of desiccant used in our dehumidifiers, without which it is not even purchased from the supplier. The lab will also aid in dynamic testing of desiccants, selection of design parameters, by keeping any one parameter constant, product drying applications and product developments.



National Award for Outstanding Entrepreneurs 1987 for our M.D.

Mr. Deepak Pahwa, Managing Director, Bry-Air India, was honoured with the National Award for outstanding entrepreneur for the year 1987.



MR. DEEPAK PAHWA, MD, BRY AIR INDIA

The awards were presented by The President, Shri R.V. Venkataraman, on February 13th, at Vigyan Bhawan. As Mr. Pahwa was out of the country, the award was received by his wife Mrs. Vinita Pahwa, also a director in the company.

Contd. to Pg 2 Column 1

Bry-Air Makes a base in Malaysia



Effective February 1, 1989, Bry-Air India has a sales office in Kuala Lumpur, Malaysia. The office is headed by a dynamic and able Malaysian

Contd. to Pg 2 Column 2



Contd. from Pg 1 Column 3 National Award

Bry-Air has made rapid strides under his stewardship in the last five years. Apart from being one of the first joint ventures of its kind, Bry-Air has not only captured the domestic market through successful marketing but also made sizeable exports of the same products to quality conscious South-East Asian markets.

For a small scale venture to make inroads into these markets, which have access to the best available in the World market, highlights Bry-Air's strength in marketing, product quality and engineering support; not to mention the foresight of the man behind the company.

◀ Mrs. V. Pahwa receiving the award from the PRESIDENT

Contd. from Pg. 1 Column. 4. MALAYSIA OFFICE



Engineer Mr. Stephen Tock. The sales office will directly service the Malaysian territory with sales and after sales service support and also serve as a base for lending quick engineering support to the other ASEAN countries, where Bry-Air products are already being used.

According to a recent study, Malaysia has been emerging as the new base in the ASEAN region for investments to service the surrounding territory with its developed infrastructure, open governmental policies, abundance of natural resources and skilled man power base. It is still

attracting a larger part of the foreign investment than any other surrounding country.

Bry-Air experience, in the Malaysian territory, has been very promising so far. With a population of thirty dehumidifiers, working in various installations, Bry-Air has established its credibility, in terms of quality and engineering support.

The regional presence can only strengthen the goals of the parent company of a global presence and may be a Bry-Air ASEA.

'Thrust Area for the Year' FOOD PROCESSING

The food processing industry, in India, is finally getting the necessary attention from the government and industry. Large number of incentives have been announced by the government to make the market lucrative, for big investments and foreign technologies to come in.

With sophisticated machineries and technologies for processed, extruded or dehydrated foods, need is being felt, for proper environmental control during processing, manufacturing or packaging. Bry-Air dehumidifiers have been an essential part of the plant air conditioning, at all major food processors in the U.S. and Europe.

In India several Bry-Air dehumidifiers are in use, in major food processing companies.

At the **Ahara and India pack** exhibition in January 89, Bry-Air dehumidifiers and heat recovery systems got a renewed exposure within the food industry. Over 600 fresh enquiries were recorded, 70% of whom were new entrants into this field.

A sure indicator that the food industry is on its way!



FORM IV Statement of Ownership and Other Particulars of 'Dry Facts' Place of Publication 20, Rajpur Road, Delhi 110 054
Periodicity of Publication : Quarterly. Name, Nationality and Address of Printer, Publisher and Editor : Vinita Pahwa,
Indian, 20-Rajpur Road, Delhi 110 054 Name and Address of Owner : **Arctic India Sales**
I, Vinita Pahwa, hereby declare that the particulars given above are true to the best of my knowledge and belief.

When Moisture is Torture!!!

'Industrial storage' PART I

From Aircrafts to safety Pins' Bry-Air Dehumidifiers provide the solution for effective storage to preserve quality.

Aircrafts, automotive parts, ammunition, bearings, batteries, chemicals, card board boxes, documents, engines, electronic components, leather items, maps, metal parts, assemblies, gearboxes, films, foods, medicines, precision parts for watches, spares and sea vessels all need to be stored at the raw material, semi assembled or prior to packing stage.

The one single, enemy of goods, in storage, to be contended with is 'Corrosion'. In fact, Corrosion costs the country a phenomenal Rs.7000 crores annually. It costs an organisation, a tremendous amount of vital resources, towards the annual maintenance and replacement of corroded, thereby useless components and parts etc.

Types of Corrosion

Corrosion can be classified into two types;

Inorganic and **Organic**

Inorganic takes the form of rust on metal surface.

Organic corrosion manifests itself in the form of appearances of mold, mildew, fungus or any other bacterial growth.

Corrosion problems are Moisture Problems.

Corrosion does not occur in dry-air. It is the invisible water vapour in the air which is the cause of rusty bolts and industrial foe of product quality & storage.

A certain amount of water vapour is always present in the air. This water vapour or moisture in the air is measured in terms of relative humidity.

The basic problem arises from the fact that water vapour will condense, on any surface, colder than the dew point temperature of the surrounding air mass.

Also, sudden changes in temperature, within the room will effect the internal humidity environment and lead to condensation on any surface. This subsequently leads to corrosion.

Corrosion Phenomenon

Inorganic Corrosion is defined as destruction of a metal or alloy by chemical or electro-chemical reaction with its environment.

Though corrosion is a complex function of many factors, the three most important are:—

- Voltage differential between pure and impure areas.
- Physical conditions of temperature on humidity.
- Oxygen in the air.

Higher humidities lead to higher condensation of water on the metal surfaces. This molecular thickness of the layers of water, eventually permits ionic conduction, which accelerates the rate of corrosion.

With iron and steel, the ferrous ion may react with hydroxyl ion in water to form ferrous hydroxide and with oxygen to produce ferric oxide (rust).

Organic Corrosion: Mould, mildew, fungus are all different types of bacteria. The spores lie dormant on materials, until suitable conditions of temperature and humidity are achieved. Once germinated, the mold prospers and the speed of growth is a function of temperature and humidity. The condensed moisture on material acts as a medium conducive to the growth of bacteria.

This micro-organism growth is injurious to materials, as it not only results in decomposition but also mechanical weakening of the product. In most cases, bacterial growth can be arrested if RH is maintained below 45%.

Rust begins at 45

Relative humidity at 45%, is the critical level, above which rate of corrosion accelerates. Industrial pollutants, like sulphur dioxide, enhance the corrosion rate. The rate of corrosion is faster, when surfaces are exposed to polluted air in combination with high relative humidity.

Hence, if the surrounding air in the storage area can be conditioned to restrict relative humidity to 45%, then stored material can be retained in good condition.

A little water removal saves a lot of money.

Dehumidification provides the answer to controlling moisture in a warehouse or a storage area. Not only does the controlled RH restrict rusting of Iron & steel, but also protects other moisture sensitive materials.

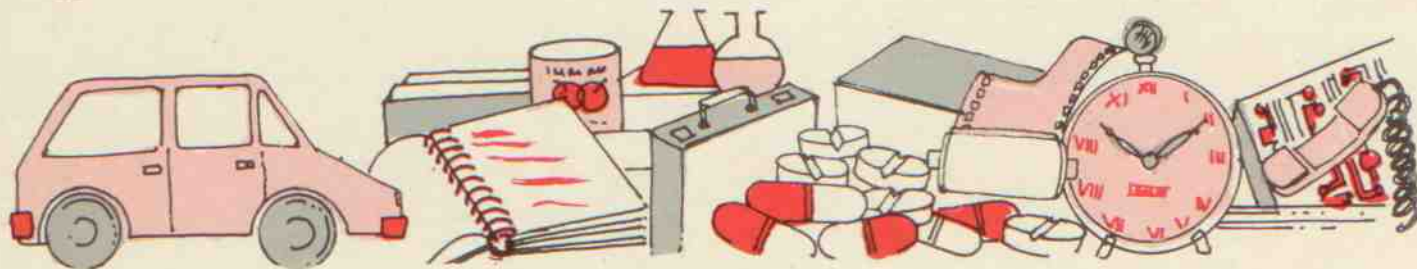
Electronic components remain unaffected and cardboard boxes remain stable. Powder does not cake, glues remain adhesive, medicines do not decompose and wood can be stored without the risk of dimensional change or rot.

A great deal of rejection could also be avoided if products were provided with correct moisture climate. Moreover, dehumidification completely replaces protective oiling and similar methods.

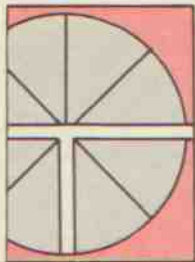
Dry Air Stories!!!

Bry-Air, has done hundreds of jobs, for storage of various products, from bank notes to cheese and leather, to watch parts to steel and metal hardware. In air, next issue we will share with you some of our more interesting applications in industrial storage, based on dehumidification systems.

We still have a lot in store for you!!!



THE TOTAL HEAT ENERGY EXCHANGER



Bry-Air now offers for the first time in India, the heat wheel for total energy recovery. The heat wheel complements Bry-Air's range of heat pipe based air to air heat exchangers, bringing the two most cocurrent technologies in the World to India.

INTRODUCING THE HEAT WHEEL

What is it!

The Heat Wheel is simply a heat exchanger recovering waste heat from an air stream to preheat incoming air, thus saving on energy consumption.

The wheel consists of a rotor made of aluminium or specialised paper intensively coated with fine silica gel which excels in the humidity adsorption and desorption performance. The wheel incorporates a flute design for maximizing surface area in contact with the air flow.

The wheel aids in total energy recovery of both sensible and latent heat. The aluminium sheet and silica aerogel take part in the sensible heat (temperature) exchange and the micro-particles of the silica gel in the latent heat (humidity) exchange, both of which perform the total heat energy exchange.

How it works?

The heat wheel or rotor slowly rotates between the outdoor and return air streams, the higher temperature air stream gives up its sensible heat to the aluminium. The energy is, then, given up to the cooler airstream, during the second half of the revolution.

Just as the temperature is captured and released, so is the moisture (latent energy) by the desiccant coating. Since the opposing airstreams have different temperatures and moisture contents their vapour pressures differ. This vapour pressure differential serves as the sole driving force which promotes the transfer of water vapour.

The need for Total Recovery

The ability to recover latent energy is of paramount importance in HVAC systems, in both heating and cooling systems. During the cooling season, when the latent load is greater than the sensible load, the outdoor air is dehumidified.

In the heating season, the moisture recovery reduces the need for humidification.

For process applications, the requirement of fresh air is necessary. Even a small percentage of outdoor air increases the physical plant requirement. The use of the heat wheel reduces the need to condition the outdoor air, reducing energy consumption and capital costs.

Applications — Heat Wheel

- Hospitals, Nursing Homes
- Animal Research, University Labs
- Painting booths in the automotive and other industries.
- Clean Rooms, circuit board, chip manufacture
- Breweries and food processing
- Welding, foundry and casting areas
- Bake ovens, printing lines
- Product Drying Operations
- All humidity controlled spaces
- Hotels, airports

**A GREATER OPPORTUNITY
TO REDUCE ENERGY COSTS**



offers yet another energy saving
air to air heat recovery device.



The heat wheel for sensible and
latent heat recovery along with the existing



Heat Pipe for sensible heat recovery
could provide a solution for your energy
saving needs

Applications — Heat Pipe

- Bakery Ovens
- Boiler
- Dehumidifier
- Foundry hot blast
- Tumble Dryer
- Veneer Dryer etc.

For details information write to
ARCTIC INDIA SALES
20 RAJPUR ROAD, DELHI-110054.

