



Dry facts

...from Arctic India Sales

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'THE NEW YEAR TIDINGS'

One of the nicest things about the New Year is the pleasure of remembering friends and special people who at times may not have heard from you all through the year.

Unfortunately or fortunately, at Arctic India Sales, we do not let that happen. We keep in touch at least four times a year through 'Dry Facts'. Of course, one of the problems these days is that there is so much reading matter published that the busy executive is loath to add another journal to encroach further on his time. With this in mind we endeavour to make our issues as meaningful as possible, giving you relevant information on our products application, people and our company.



In 1987, we will also be bringing out the International issue of our newsletter under the name of 'Bry World', introducing to you the not-so-dry world of dehumidification.

Several great new things are planned for the coming year. New product lines are being added in related fields, expansion plans to manufacture these products, and a new advertising campaign among others. Behind this is our continuing commitment to be able to serve you better by providing you profitable solutions to your problem and to grow together.

What better way to start New Year than on this note!

Wishing you a profitable New Year!!



'B-R-R-R-Y AIR' GOES TO RUSSIA

What is Bry-Air doing in Russia in the midst of snows in January? Braving the icy, chilly winds to be at the 'Pharma Industrial '87' a specialized exposition of the pharmaceutical machinery. Since dehumidification is an inherent part in the manufacturing process in the pharmaceutical industry, and Bry-Air as specialists in the field of dehumidification are participating in this show. Being held in Moscow from January 14 to 22, it will be a show where the latest in world technology from European countries will be on display. So Moscow, here we come!!

BRY-WORLD WELCOMES YOU TO ASHRAE WINTER MEET AT NEW YORK

Bry-Air (International) is participating in the winter meeting of the American Society of Heating, Refrigeration and Exposition from January 18-22, 1987. Member companies Bry-Air Inc., U.S.A., Delair, The Netherlands and Bry-Air India's joint presence reiterates the world leadership in the field of dehumidification.



'YOU PEOPLE ARE DIFFERENT'

Was a spontaneous response from Stephen Tock the representative from Mecomb Malaysia who was training at the Bry-Air plant in November along with representatives from BBC Bangkok and Fair Trading Bangladesh.

Stephen has trained with several companies to learn more about the products he has been selling. He expected similar rigid schedules and impersonal texts among other things and was pleasantly surprised to see the rapport and the personal care with which the training programme was designed.

It was also a first visit for Mr. Sermkiat from Bangkok and Mr. James Dipankar who also found the training extremely beneficial.

However it was not all work. The visitors had a choice to see sights of Delhi and a day trip to Agra complete with snake charmers and elephants.

Bry-Air takes pride in building skills through training. Its biggest asset today is the trained manpower as selling this equipment requires sound application engineering. It is only through these skills that effective solutions can be derived for the customer's specific needs.



ENCOURAGING BUSINESS FROM BANGLADESH

Neighbours are often not your best customers. Not so Bangladesh! Bry-Air has been selling its product in this market ever since the inception of its export cell in 1983.

The pharmaceutical industry, being one of the fastest expanding industries in the country, is a natural customer for Bry-Air dehumidifiers.

A recent order for 3 engineered MVB systems valued at US \$53,000 from Square Pharmaceuticals Ltd., proves the point well. Earlier in the year, among other orders, 4 compact units were shipped out to Essential Drugs, the largest Govt. owned pharmaceutical unit.

AHMEDABAD HOSTS THE 38TH IPC

'Pharmacy for a better tomorrow' was the theme of the 38th Pharmaceutical Congress meeting at the colourful city of Ahmedabad. The congress was inaugurated by the President Giani Zail Singh. The exhibition which



highlighted the theme of the congress had a colourful display of machinery and material depicting the ever-increasing capability of the pharma industry in technology.

Arctic India Sales received a tremendous response to its display of Bry-Air products dehumidifier and material handling systems.



Picture shows Mrs. Saroj Kharpade, the Health Minister, at the AIS stall, with Dr. Patel, Hony. Treasurer, IPCA and Mr. Deepak Pahwa, Chief Executive, AIS.

WHEN MOISTURE IS TORTURE!!!

Wood Seasoning Using Bry-Air Dehumidifier

Well-dried timber is the first essential to quality finish in wood. The drying process is vitally important within the manufacturing cycle and it must be fast, economical and reliable.

The most common method of drying is sun-drying or *Natural drying*.

However, this process involves long periods of drying time, thereby necessitating large investments in timber stock.

The process does not allow the timber to reach low and uniform moisture contents and additionally long periods of exposure leads to the loss of colour, splitting, warping, mold and staining, thereby making it uneconomical and obsolete.

The alternative method would be *artificial drying* by subjecting the wood to high temperature. This reduces drying time drastically but leads to warping, checks, honeycombs and loss of colour, and loss of active components such as resins, salts, pigments, rubbers and tannins.

Hence this method becomes totally undesirable. The answer lies in reducing the relative humidity of the chamber in which the wood is seasoned so that moisture is extracted from the wood and given up to the surrounding atmosphere.

Temperature and humidity are maintained so as to dry the timber in the shortest time by avoiding the defects of high temperature drying like cracks, honeycombing and warping.

Bry-Air has done several jobs in wood seasoning plants, using the chemical dehumidifier by *maintaining low relative humidity and temperature control*. An actual case study is outlined so as to give an insight into the construction and working of the plant.

The Case Study

Wood Land Mark, Agra, approached Bry-Air for an economical solution to effective wood seasoning using the dehumidification principle.

The plant was using different kinds of wood like Teak, Mango, Kail and Hollock in manufacturing. Green wood on an average had an initial moisture content of 60 to 70%. The requirement was to reduce the moisture content to about 12 to 15%. The plank sizes which were being used for wood vary between a maximum length of 7 ft., width of 6 to 9 inches and a thickness of 40 mm. The system was to be designed for drying 250 to 500 cu. ft. wooden planks at one time in the shortest time span. The equipment would need to have flexibility through process control to dry different kinds of wood at varying levels of moisture content.

Bry-Air provided a MVB-7.5A dehumidifier which was housed in a separate plant room adjacent to a specially constructed chamber for housing the sawn timber.



The chamber/kiln was constructed according to the design provided by Bry-Air engineers with special insulation and vapour barrier treatment.

The dehumidifier provides constantly 750 Cfm of dry air to the chamber or kiln where the sawn timber is stacked in such a way that enough space for air circulation within the boards is provided.

The air flows through the stacks of timber, absorbing moisture from the room and the wood. This flow of air continues throughout the process until the timber reaches the desired moisture content.

To cause a forced air circulation within the kiln to aid the planks in giving up moisture, an uprated fan and motor was installed to handle 2000 Cfm of air. This air is additionally heated by an auxiliary heating source by providing a special heater package outlet of the fan. The fan assembly is installed within the chamber.

Accurate controls of time, temperature, air volume and velocity are vital to maintain proper equilibrium of moisture content.

Actual conditions which were maintained in the kiln were, a temperature of 40°C and a relative humidity of 35 to 40%. The relative humidity within the kiln is sensed and controlled by a humidistat which automatically switches on or switches off the dehumidifier.

Time and temperature control are very important. Too fast or too dry a cycle will cause severe damage to the wood. The cycle requires a definite smooth temperature.

Actual operations of the equipment for one year testified the following results:-

Type of wood	Initial moisture content by weight	After drying	No. of days
Mango	60%	12%	4
Teak	25%	8%	3
Kail	60%	9-10%	5
Hollock	35%	10%	3

Further, the dehumidification principle totally eliminates cracking and splitting.

If wood is your business, ask Bry-Air to provide the drying system.

'PLASTICS'—DON'T JUST 'DRY IT' BUT 'BRY-AIR' IT!

Bry Air, specialists in the field of dehumidification, have also an important edge in meeting the dynamic needs of the plastics industry. Two decades of experience in solving drying and material handling problems specific to the plastics industry have made them the leaders in this field too.

Plastic Drying—The Bry-Air Principle

All plastics in the resin state need drying before processing. Without exception, the longer and hotter a given forming operation is, the drier the pellets must be.

Plastic resins absorb moisture from the air in direct proportion to the surrounding relative humidity. At equilibrium, the moisture content is uniform throughout the interior of the pellet. Thus, in order to dry plastic resin, you must provide a dry air environment so that pellets will come into equilibrium at a lower moisture content. Two means of lowering relative humidity is with hot air and with dessicant dryers.

Effects of Air Temperature

The rate of moisture gain or loss along the solubility curve is quite dependent upon temperature because of the strong effect on the diffusion rate of water molecules through the pellets. The higher temperature provides a lower RH, thereby drying pellets at a significantly greater rate. Hot air removes surface moisture from non-hygroscopic resins efficiently.

Effects of Dewpoint—By Lowering Dewpoint

The drying rate is not greatly affected by differences in dewpoint. However, *lower dewpoint allows pellets to approach a lower equilibrium state of dryness.* This extra degree of dryness is essential to producing quality parts. Furthermore, the lower the dewpoint, the lesser the time it takes to reach a particular ending moisture content.

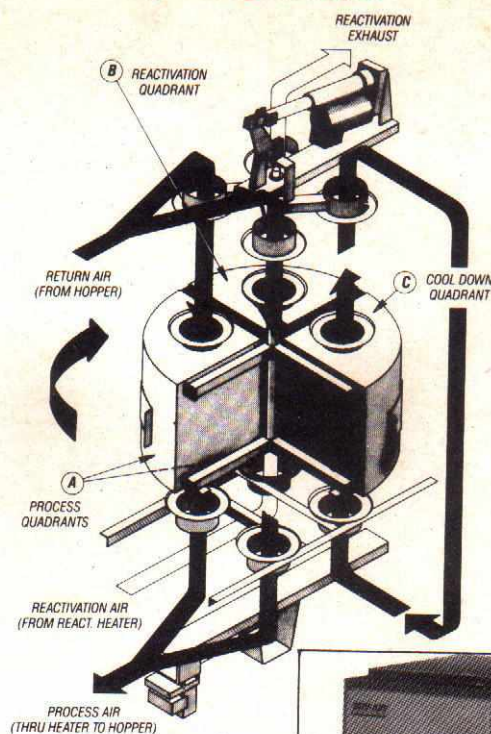
The Bry-Air system gives -40°F or even lower dewpoints so even the most demanding materials can be dried from within.

Maintaining low dew points through dessicant dehumidification:

A dessicant bed is composed of dessicant enclosed by two solid sides and two sides with perforated openings which allow the passage of air. Since dessicants have a natural affinity for water, and air sample exposed to a dessicant will give up its moisture to the dessicant.

When the dessicant has completed its drying job, it is removed from the process air stream and separately regenerated with heat. The presence of heat will cause the dessicant to give up the moisture (through evaporation) which it had previously absorbed. Once

Operating Principle



RM 50
Dehumidifying
Plastic Dryer



the accumulated moisture has been driven from the dessicant, the bed is ready again for reabsorption.

The figure above explains the sequence of operation.

The RM Dryers incorporate deep dessicant beds filled with molecular sieve to provide low dewpoint air consistently. The unique closed-loop, cool down cycle increases the absorption capacity of the dessicant by cooling it without introducing moisture laden air.

The counter-current air flow design reduces the energy needed to reactivate the dessicant and extends dessicant life. Last, the innovative multiple bed design ensures that constant low dewpoints are maintained throughout each cycle, thus eliminating the severe dew point spiking that is inherent with twin-tower designs.