dry facts©
from Bry-Air® www.bryair.com
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Dehumidifiers – You name it, we have it !

We taught the world the Art of Drying

In fact, **the Silica Gel Desiccant Rotor,**
which is at the heart of any dehumidifier,
was invented by us . . . at Bry-Air

Bry-Air® has the widest, and the world's most energy efficient range of Desiccant Dehumidifiers and Dryers, for every dry air application, in every industry. Thousands of our customers appreciate our contribution to improvement in their product quality, productivity and profitability.

Re. 1. Subscriber's Copy.

Electronic Corrosion in DCS Control Rooms and Server Rooms

"Distributed control system (DCS) are dedicated systems used for controlling manufacturing processes that are continuous or batch-oriented, such as **oil refining, petrochemicals, central station power generation, pharmaceuticals, food & beverage manufacturing, cement production, steel making, and paper making.** Apart from DCS, servers and control rooms have more critical equipment for BPOS, IT/ ITEs etc. The presence of corrosive gases present in the facilities mentioned above causes micro - corrosion. Corrosion if left untreated for long is responsible for malfunctioning, retarded performance and under extreme circumstances even electronic equipment failure thereby leading to process failures. While measures are in place for controlling temperature and humidity, gaseous contamination is generally overlooked. In addition to temperature and humidity, gaseous contamination should also be controlled.

Analysis of problem

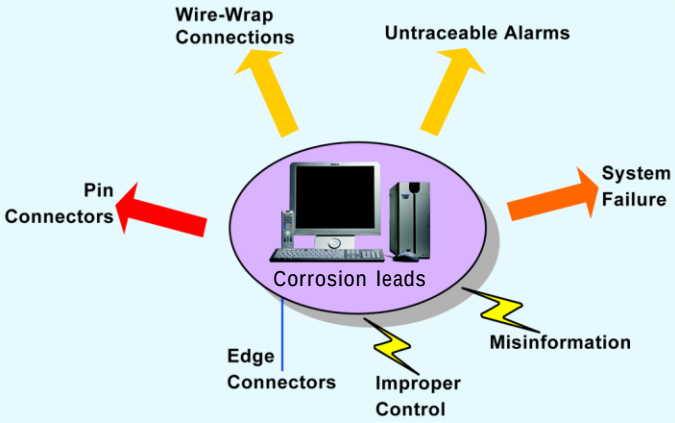
Corrosion of metals is caused primarily by the attack of gaseous contaminants and is accelerated by heat and moisture. Higher than permissible amounts of gaseous contaminants like sulfur compounds present in the form of H_2S, SO_2, SO_3. Nitrogen compounds present in the from NO, NO_2, NO_3 and Cl_2 and Ammonia cause the electronic corrosion process. These react with the metal on ICs, and other electronic and electrical parts and form a non conducting layer which resists current flow leading to failures. The severity of damage depends on the kind of gaseous contaminant.

Studies which have shown that atmospheres which cause corrosion above acceptable limits is as mentioned at right.

The Bry-Air® Solution

Process Industries and or IT industries having critical equipments in DCS rooms and or Server/ Datacom rooms can prevent downtime caused due to corrosion/ breakdown by installing a Bry-Air *EcoScrub* Air and Gas Purification System. Bry-Air's Air and Gas Purification System removes corrosive gases by a process of Adsorption and Chemisorption using the *BrySorb* impregnated media. The Bry-Air *EcoScrub* is designed to maintain various electronic environmental standards such as ISA standard 71.04, IEC standard, Environmental standards followed by electronic manufacturers all over the world for smooth operation of electronics.

Bry-Air's Airgineers have more than 40 years of experience and have installations in every nook and corner of the world.



ISA Environmental Classes, Relative humidity less < 50%				
	ISA Class G1	ISA Class G2	ISA Class G3	ISA Class GX
Copper Coupon film thickness (angstroms)	0-299	300-999	1000-1999	≥ 2000
Gas Concentrations (ppb, by volume)				
	ISA Class G1	ISA Class G2	ISA Class G3	ISA Class GX
H2S	≤ 3	≤ 10	≤ 50	>50
SO2, SO3	≤ 10	≤ 100	≤ 300	>300
Cl2	≤ 1	≤ 2	≤ 10	>100
NOx	≤ 50	≤ 125	≤ 1250	>1250
HF	≤ 1	≤ 2	≤ 10	>10
NH3	≤ 500	≤ 10000	≤ 25000	>25000
O3	≤ 2	≤ 25	≤ 100	> 100

Class definitions:

G1: mild-an environment sufficiently well controlled that corrosion is not a factor in determining equipment reliability

G2: Moderate-an environment in which the effects of corrosion are measurable and may be a factor in determining equipment reliability.

G3: Harsh-an environment in which there is a high probability that corrosive attack will occur. These harsh levels should prompt further evaluation resulting in environmental controls or specially designed and packaged equipment.

GX: severe ambient-electronic/ electrical equipment is not expected to survive in these conditions.

WHEN MOISTURE IS TORTURE !

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

Gelatin Drying

for food, pharmaceutical, cosmetic and photography




Gelatin is a colorless and tasteless solid substance that is made form the collagen of animal's skins and bones. Gelatin drying for food and medicines is a common practice.

Gelatin uses

Food: low fat and light foods, yoghurt, ice creams, jellied meat, confectionery, gelatin dessert. Gelatin is also used in mousses, cream fillings and whipped toppings because of its whipping and stabilizing properties. Gelatin is used to clarify wines, beer, apple juice and vinegar.

Pharmaceuticals: Tablets, emulsions, surgical sponges, ointments, salves, jellies, suppositories, plasma substitute for medicines, dietary/health supplements, syrups, etc. Gelatin is highly digestible and serves as a natural protective coating for medicines.

Gelatin has also been shown to benefit arthritis sufferers in a large portion of the cases and is observed to promote nail and hair growth.

Photography: Photographic grade gelatin is used in all of the layers of a photographic product including the silver halide crystal-containing emulsion layer, coating layer, sub-coating layer, anti-halogen layers and non-curl layer.

Cosmetics: shampoos, conditioners, lipsticks and fingernail formulas.

Drying Process

The Gelatin Drying process involves passing gelatin through eight separate temperature zones where temperature is controlled within ±1ºC.Warm liquid gelatin that is obtained after hydrolysis is spread over a slowly revolving stainless steel drum. Over this air is blown. The chill, dry air congeals the gelatin as the drum rotates and a elastic band rolls out at the other end of the drum.

The temperature, relative humidity and velocity of the air must be accurately controlled for effective and rapid drying of the gelatine. If the temperature is low, the gelatine band becomes brittle and snaps. If the temperature and humidity are too high, or air velocity too low, the gelatine will not solidify into a band. From the capsulating machines, the soft moist capsules are transferred to drying chambers.

Here the moisture from the gelatine shell must be removed gradually to prevent superficial hardening. Drying at elevated temperatures impairs product quality.

Bry-Air® Solution

Bry-Air Dehumidifiers can maintain RH as low as 1% or even lower at constant level, regardless of ambient conditions.

Solutions for humidity control . . .
Showcased worldwide

China Refrigeration – China


Plastic – Philippines

ICE Cold Chain Expo – India

Big 5 – Dubai

Plastivision – India

India Show – Turkey

DRI™ ARCTIC COOLER – Cooling Large Areas Economically

- Introduce 100% Fresh Air
- Improve Indoor Air Quality (IAQ)
- Windows & doors can be left open
- Ensure full ventilation – exhaust odors and stale air
- Low purchase & installation cost
- Lower operating cost (approx. one tenth of the Air-Conditioning cost)

- Higher Productivity
- Lower Absenteeism

Ideal for : Offices, Workshops, Cold Storages, Shop Floors, Green Houses, Poultry, Manufacturing Facilities and Generator Unit Rooms, Shopping Malls, Textile Processing

For more information www.drirotors.com

www.bryair.com

For more information on any product, application covered in the issue, please write to :

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Another technological breakthrough
upto 45% ENERGY SAVING

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