# Convenience Food..... Snack Food! A Package Deal!

***Environment control makes the delicious difference***

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*Our changing lifestyle, technological advancement and paucity of terms especially in the cities, has changed the way we eat. Increasingly, we are getting more and more dependent on convenience and snack foods.*

*Convenience food, or tertiary processed food, is commercially prepared food designed for ease of consumption. Products designated as convenience foods are often prepared food stuffs that can be sold as hot, ready-to-eat dishes; as room-temperature, shelf-stable products; or as refrigerated or frozen products that require minimal preparation (typically just heating).*

These products are often sold in portion controlled, single serve packaging designed for portability. Convenience food includes products such as candy; beverages such as soft drinks, juices and milk; fast food; nuts, fruits and vegetables in fresh or preserved states; processed meats and cheese; and canned products such as soups and pasta dishes.

Modern convenience food saw its beginning in the period that began after World War II in the United States. Many of these products had their origins in military developed foods designed for storage longevity and ease of preparation in the battle field. After the war, many commercial food companies were left with surplus manufacturing facilities. These companies developed new lines of canned and freeze dried foods that were designed for use in the home.

Food for thought!!

The food industry today is incorporating more and more sophisticated technologies to maintain the growth fueled by changing consumer tastes and lifestyles. As consumption habits move from home cooked to processed food, every processor is endeavoring to ensure that the food product reaches the consumer with the right flavor, perfect shape as well as has a long shelf life.

Most processed food like candies, biscuits, fruit powders, instant coffee, tea, sugar, powdered drink mixes, dried vegetables, soup concentrates and milk powder etc, all have one thing in common. They are all hygroscopic and sensitive to high relative humidity. Moisture regain in food products not only alters their appearance but foods generally become soggy, rubbery and less appetizing.

Moisture or rather uncontrolled humidity during processing, packaging, storage often plays a party spoiler. Moisture control is essential in every segment of the food industry in the spheres of

*** Storage**
*** Production**
*** Packing**
*** Processing**

Foodstuffs are made using high temperature processes. So we expect that excess water has been driven off. However, if these products are exposed to humid environment, even for a short time, they absorb water from the surrounding air.

On humid days, it is exasperating when salt from the salt shaker refuses to flow. In the processing and packaging machinery, sticky powders can interfere with the operation and obstruct the free and easy movement of the food stuff. Candy wrapping machines and packaging machines for food powders are typical examples. Something as simple as a cake mix becomes a double problem. Not only the powdery mix lump refuses to flow smoothly in humid conditions, it also hinders the functioning of the packaging equipment.

Obviously, when moisture can have such a profound effect on food and / or machinery, the solution lies in conditioning the air in the packaging area in the same way as in the processing and manufacturing stage. So no change in state can take place in the food from the furnished material to the final packaged product.

In processing powdery foods especially health foods like juice concentrates, protein supplements, soup powders, cocoa as well as gelatin's, dehydrated soft drink concentrates, instant coffee powders and milk powders, the presence of moisture in the surrounding air can cause lumping or caking causing the tiny particles to stick or cluster together, thus inhibiting their free flow in the manufacturing or packaging process. Many granular or powdered materials are transferred to packaging via high velocity air-streams. This process is commonly referred to as Pneumatic Conveying or just airveying.

The international standards laid down for desired environment.

For food handling, the efficiency of transporting powdered, granulated or flaked materials by high velocity air streams is significantly improved by drying the air. Highly hygroscopic sugar, flour, starches, and beverage and food powders make humidity control a crucial element of materials handling systems. In addition, the presence of moisture in the air may interfere with the operation of the processing machine and obstruct the free and easy movement of the foodstuff. Obviously, if moisture affects the food and the machinery in this fashion, the solution to the problem lies in surrounding the processing and manufacturing area with dry air. During packing, in many instances, low RH (Relative Humidity) has to be maintained so as to prevent moisture regain.

Chocolates, hard candies, chewing gums, bubble gums, etc contain a large percentage of sugar or sugar-based ingredients which are hygroscopic. When the humidity is high, these products regain moisture and become sticky and prone to mould formation. This inhibits the natural flow as it sticks to the high speed processing and packaging machinery and also to the wrapping material. The processing thus slows down and also creates a problem of hygiene, resulting in loss of production as well as loss in the final product quality. Uncontrolled humidity/moisture during the manufacturing and coating process of confectionery causes:

*Change in the structure/dimension of the film core interface
*Grainy and irregular coating
*Increase in residual moisture content and improper adhesion i.e. degradation of coating quality presence of moisture
*Sugar bloom and change in flavor.

**THE SOLUTION!!**

The solution to the problem lies in maintaining required stringent conditions of temperature and humidity and in surrounding the processing, packaging and storage areas with dry air. Bry-Air desiccant dehumidifiers have been helping to ensure required humidity conditions are maintained in processing, coating, packaging areas of many food processing and confectionery biggies like Cadbury, Wrigley, Nestle, M&M, Perfetti, etc. Bry Air Dehumidifiers have, also been, successfully functioning during the gum coating process at the Wrigley company facilities in Kenya and India. Bry-Air desiccant based dehumidifiers lowers the moisture content of the surrounding air maintaining RH as low as 1% at a constant level regardless of the ambient conditions during the production, storage and packing to help improve the quality and retain the freshness of the processed food longer.

| Operation / process | Temp. °C | °F | Humidity RH |
|---|---|---|---|
| Fruit powder handling | 20-22 | 68-72 | 35% |
| Instant coffee creamer mfg./pkg. | 26 | 79 | 20% |
| Tomato powder production | 19-23 | 66-73 | 25-35% |
| Citrus crystal packaging | 27 | 81 | 15% |
| Dry soup packaging | 21 | 70 | 20% |
| Energy food packaging | 25 | 77 | 40-45% |
| Instant coffee packing | 26 | 79 | 20% |
| Milk powder packing | 22-25 | 72-77 | 35-40% |
| Cracker & wafer packing | 21-29 | 70-84 | 35-40% |
| Powdered drink mix packing | 21 | 70 | 20% |
| Confectionery - starch rooms | 21-24 | 70-75 | 30-40% |
| Cooling of spray dried milk powder | 10 | 50 | 35-40% |
| Whey powder manufacturing/storage | 21-26 | 70-79 | 15-20% |