

Conference on Packaging for Safety of Foods

**May 25, 2006
Hotel Sun-N-Sand, Pune**

Conclusions and Recommendations

The Conference on “Packaging for Safety of Foods” was organized jointly by the Ministry of Food Processing Industries and International Life Sciences Institute-India in association with APEDA and IIP on 25th May at Hotel Sun N Sand in Pune. The Conference was attended by 80 participants from industry, academia and government departments. The Conclusions and Recommendations of the Conference are given below.

Preamble

Food processing and food Packaging go hand in hand. The food that is processed has to be transported and distributed before it actually reaches the consumer.

The demand for food packaging is increasing rapidly because distances between food producers and food processors and between food processors and food consumers have significantly increased. Further, with nuclear families, consumer packs have become smaller in size and, with both parents in the family working, demand for convenience foods has hugely expanded necessitating a variety of packaging for a variety of foods.

Special Characteristics of Food Packaging

Food packaging is special for a variety of reasons:

- First packaging has to act as a physical barrier to protect food from contamination and waste. That also means that packing material itself should not be a contaminant.
- Second, packing must preserve the nutrition value of food by preventing interaction with oxygen, carbon dioxide and moisture.
- Third, it is desirable that packing prolongs the shelf life of foods
- Fourth, packaging can be used to change environment inside the pack and thereby delay the ripening of fruits or spoilage of vegetables.

- Fifth, the package should give information and instructions as prescribed by Government regulation

Bulk Packaging

The bulk/transport packages are principally made from wood, paper, metal, plastics and natural fibers like jute. They must:

- provide protection against external climatic conditions
- should be able to be efficiently filled, closed and transported
- should be inexpensive
- should be readily disposable, re-usable or have after –use

Bulk packs can be rigid like metal drums, plastic drum, crates, etc. or semi rigid and flexible packs. Packaging can be aseptic bulk packaging or molded vacuum packs

Consumer Packs

Primary packaging should be a good barrier against moisture, oxygen and carbon dioxide. The best options are mono layer and multilayer materials based on polyolefins nylon, aluminum foils, metalized polymers, and high performance multilayered materials having wide seal temperature, machineability, mechanical strength, and printability, resistance to infestation, and should be food grade.

For safety of food products virgin material of international food standard, like Codex, is necessary. There are however materials which can be re-used or reprocessed for further use.

Flexible pouches are the most common form of packaging. They have a number of advantages over other packaging materials. They are cheaper, flexible, easy to transport, can be rapidly heated or cooled, retain taste, are recyclable and eco friendly.

Major foods preservation technologies:

Objective	Factor	Preservation method
Reduction or cessation of microbial growth	Reduced temperature	Chill storage
	Reduced aw/raised osmolality	Freezing and frozen storage Drying and freeze-drying Curing and salting Conserving with added sugars
	Nutrient restriction	Compartmentalization of aqueous phases in water-in-oil emulsions
	Decreased oxygen	Vacuum and nitrogen packaging
	Increased carbon dioxide	Carbon dioxide enriched 'controlled atmosphere storage' or 'modified atmosphere storage' or 'modified atmosphere storage'
	Acidification	Addition of acid, Lactic or acetic fermentation
	Alcoholic fermentation	Brewing, vinification
	Use of preservatives	Addition of preservatives: a) Inorganic (e.g. nitrite sulphite) b) Organic (e.g. propionate, sorbate, benzoate) c) Antibiotic (e.g. nisin)
Inactivation of microorganisms	Heating	Pasteurization
	Ionizing radiation	Sterilization
	Decontamination	Fumigation
Restriction of access of microorganisms to food	Packaging and storage, etc	Aseptic processing and packaging, etc

Source: Paper on Packaging presented by Dr P Dasgupta, Head, Packaging Development, Hindustan Lever Ltd. at ILSI-India Conference on Packaging for Safety of Foods, Pune

Active Packaging

Active packaging not only provides barrier to outside environment but also controls and reacts to changes taking place inside the package. It senses environmental changes and responds by changing the properties.

Active packaging is particularly useful for packaging of fruits and vegetables. It can be particularly relevant in the export packaging of bananas, mangoes, cauliflower and peas of which we are the largest producers in the world.

Weights & Measures

The objective of the legislation is to regulate trade in pre-packed commodities, ensure information about the commodities in the packages as also the availability of correct quantity.

Declaration has to be made on every package about the weight subject to a margin of error. Specified commodities have to be packed in standard sizes and the display panel should be of certain area, etc.

Labels

One of the purposes of labeling is to inform the consumer about the nutrition attributes of the food contained in the package. The label should be truthful and should not mislead the consumer

Nutrition labeling is mandatory under Codex guidelines only when nutrition claims are made. This practice should be followed in India as well.

Government should evolve a standardized simple format to assist consumers initially in using food labels for appropriate food choice

Recycling of PET Bottles for Food Contact Applications

PET bottles are collected from consumers in many countries around the world such as USA and Europe for recycling and are used for both food and non-food applications. Recycled plastics have been safely used since 1991 in direct food contact applications. Efforts should be made in the country to encourage the use of recycled PET bottles for food contact applications.