ILSI India

CONFERENCE ON
FOOD ADDITIVES:
SAFETY AND BENEFITS

Role of Food Additives in Processed Foods

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Food Additive means…

Substance not normally consumed as a food by itself or used as a typical ingredient of the food, whether or not it has nutritive value, the **intentional addition for a technological purpose** (including organoleptic) in the **manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food** results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such food *but does not include "contaminants" or substances added to food for maintaining or improving nutritional qualities*.

Food Additive is a substance not normally consumed as a food but added to food for a specific technological purpose.

D*oes not include "contaminants" or substances added to food for maintaining or improving nutritional qualities*.

Types and classes

- Acidity Regulator
- Anticaking Agent
- Antifoaming Agent
- Antioxidant
- Bleaching Agent
- Bulking Agent
- Carbonating Agent
- Colour
- Colour Retention Agent
- Emulsifier
- Emulsifying Salt
- Firming Agent
- Flavour Enhancer
- Flour Treatment Agent
- Foaming Agent
- Gelling Agent
- Glazing Agent
- Humectant
- Preservative
- Propellant
- Raising Agent
- Sequestrant
- Stabilizer
- Sweetener
- Thickener

- **Food Additives recognized with Unique International Numeric Identification Nos.**

Food Additive : Functional Classes & Uses

Functional Class	Functions	Example
Acidity Regulator	Controls acidity or alkalinity for safety and stability of foods	Citric acid
Anticaking agent	Free movement /flow of particles	Table Salt
Antifoam agent	Reduces foaming	Polydimethylsiloxane
Antioxidant	Prolong shelf-life of food by protecting against oxidation deterioration	Tocopherol, Ascorbic acid in cut fruits, Lecithin,
Bulking agent	Add bulk without contributing significantly to its available energy value	Fillers, Polyols
Carrier	Dilute/Disperse food additive/nutrient without altering function to facilitate handling, distribution	Carrier solvents, Encapsulating agents, Nutrient carrier

Food Additive : Functional Classes & Uses

Functional Class	Functions	Example
Colour	Add or Restore colour in a food	Colours, Decorative agent
Emulsifier	Maintains uniform emulsion of 2 / more phases in a food	Clouding agent, Emulsifier (Lecithin),
Firming agent	Keeps tissues of fruit / vegetable firm and crisp, interacts with gelling agents to produce or strengthen a gel	Calcium lactate in fruit pieces
Flavour enhancer	Enhance existing taste/flavour *without imparting flavor of their own*	Soups, Sausages
Flour Treatment Agents	Added to flour or dough to improve baking quality or colour	Dough conditioners in bakery ware
Gelling agents	Gives texture through formation of gel	Pectin in jams

Food Additive : Functional Classes & Uses

Functional Class	Functions	Example
Preservative	which prolongs the shelf-life of food by protecting against deterioration caused by microorganisms / prevent mold and bacteria from spoiling food	Benzoate in Beverage, Nisin in cheese, Nitrate /Nitrite in cured meat, SO2 in Table Sugar
Raising agents	liberates gas to increase volume of a dough or batter	Baking powder in bakery
Stabilizers	Maintain uniform dispersion of components / prevents separation	Carragenean in dairy based drinks
Sweeteners	Intense sweetness imparting ingredient to reduce sugar addition in foods	Steviol Glycoside, Sucralose in foods
Thickener	which increases the viscosity of a food	Vegetable gums in soups

Food Additive….Ingredient with a Purpose

- Preserve nutritional quality
- Provide necessary ingredients / constituents for consumers having special dietary needs
- Enhance keeping quality and stability of food
- Improves organoleptic properties
- Improves Processing, Preparation, Storage, Distribution of food
- Reduce wastage of food

Food Additives should **not**

- change the nature, substance or quality of food so as to deceive or mislead the consumer;
- disguise the effects of the use of faulty raw materials or of undesirable (including unhygienic) practices

- **Food Additives are used in <u>small</u> quantities**

- ***Food Additives offers convenience + enjoyment of food in wide variety of appetizing, nutritious and palatable foods with technological benefits and does not mislead consumers***

Food Additives to be used under conditions of Good Mfg. Practices

- Quantity of food additive added is **limited to lowest possible level necessary to accomplish desired effect**

- **Quantity** of food additive that becomes a component of food (as result of its use in manufacturing, processing or packaging and not intended to accomplish any physical / other technical effect in the food itself), **is reduced to the extent reasonably possible**;

and

- **Should be of appropriate food grade quality**

SAFE USE LIMITS FOR FOOD ADDITIVES

Acceptable Daily Intake "Not Specified" (NS) is a term applicable to a food substance of **very low toxicity** for which, on the basis of the available data (chemical, biochemical, toxicological, and other), the total dietary intake of the substance, arising from its use at the levels necessary to achieve the desired effect and from its acceptable background levels in food, does not, in the opinion of JECFA, represent a hazard to health.

Maximum Use Level of an additive is the **highest concentration of the additive determined to be functionally effective in a food or food category and agreed to be safe**. It is generally expressed as mg additive/kg of food. The maximum use level will not usually correspond to the optimum, recommended, or typical level of use.

Labeling of Food Additives

- Food additives are Food Ingredients
- Food additives added to food needs to be labelled in Ingredients listing
- Some food additives require special labeling

Perceptions vs. Science

Processed foods uses lots of food additives

Only those food additives permitted for use in a food/category can be used within permissible limits.

UHT milk is processed food but without additives

Perceptions vs. Science

Food additives are harmful chemicals

Food additives are permitted for use by regulatory authorities based on:

- **Strong scientific risk analysis from safety, health and toxicological perspective**
- **Continuous re-evaluation of additives by Independent Scientific Experts**

New food additive approval process is a

- **Very lengthy robust, scientific process**
- **Sound scientific principles of risk assessment …. conducted by independent expert organizations like JECFA (FAO/WHO Joint Expert Committee), Scientific Panels / Scientific Committee (in FSSAI),**
- **Rigorous process to review that ADI (Acceptable Daily Intake) of food additive is safe when consumed from all foods on a daily basis through out life!**