

# Food Additives

## **A Consumer Guide**

### **Introduction**

Due to the public interest in food additives and consumer queries received in this respect, the Food Advisory Consumer Service decided to compile this general discussion of food additives. The purpose of the discussion is to give an objective overview on the uses and benefits of food additives. Additives are often mistakenly viewed as harmful chemicals added to food without good reason and also adding unnecessary costs to the food. It is, however, not generally realised that all the material on earth is chemical in nature, not just additives, but all our food and even the human body. Additives differ in their chemical composition and each additive must be judged on its individual merits (cost / benefits). It should also be noted that food additives are typically used in extremely small quantities and their contribution to the total cost of the food to which they are added is extremely small.

Food additives play an important role in modern food supply. They add to the variety, convenience, safety, and taste of our food and ensure food availability all year round.

Some additives are derived from natural sources, e.g. the emulsifier lecithin is normally extracted from soya beans. Other additives such as citric acid are found in nature but are usually manufactured industrially for cost and quality reasons, while others such as TBHQ which is used as an antioxidant are always manufactured as they do not occur in nature. Artificial additives can often be manufactured more economically and with more consistent quality than some of their natural counterparts.

### **What Is A Food Additive?**

The South African food labelling regulations state:

“Food additive” means any substance, regardless of its nutritive value, that is not normally consumed as a food by itself and not normally used as a typical ingredient of the food, which is added intentionally to a food for technological (including organoleptic) purposes in the manufacture, processing, preparation, treatment, packing, packaging, transport or storage of the food.

Additives lend functional properties to various kinds of foods and are normally categorised into four classes or groups according to the effects it has on:

1. Physical characteristics (e.g. texture)
2. Sensory characteristics (e.g. taste, smell, colour)
3. Temporal characteristics (e.g. shelf life)
4. Nutritional characteristics

Additives are usually added to food at very low levels.

Substances known as processing aids are often confused with food additives, but they are not additives and serve a different purpose. Examples of processing aids are anti-foaming agents (to prevent excessive foaming of a liquid during boiling) and anti-caking agents (to promote the smooth flow of powders). They do not affect the eating properties of the food.

## Classes Of Additives

- **Affecting Physical / Physico-Chemical Characteristics**

Although these additives are added to improve physical or physico-chemical properties, they invariably have an influence on the food's sensory properties.

- **Thickeners**

Such as starches, gums and pectins are used to give body to foods. Every thickener will fulfil a different function and is dependent on the type of food.

- **Emulsifiers and Stabilisers**

Used in emulsified food such as salad creams, ice cream and margarines. The emulsifier enables minute drops of either oil or water to be, and remain, dispersed in the other. A stabiliser delays the gradual coalescence of droplets which would otherwise lead to separation.

- **Acidulants**

Modify the acidity/sour taste required in certain foods, for example sugar confectionery and deserts.

- **Clouding agents**

Used in special classes of soft drinks to impart a particular appearance to the product

- **Aerating agents**

Examples are raising agents used in baking or carbon dioxide gas in carbonated beverages.

- **Affecting Sensory Characteristics**

Additives in this category, which are used extensively, are flavourings (which could be natural, nature-identical or artificial), sweeteners and colourants (including tartrazine). A very small percentage of the population (less than 1%) could be sensitive to tartrazine. The presence of tartrazine in a product must be specifically indicated on the label by law. Tartrazine is a much misunderstood food additive and is entirely safe for consumption by the vast majority of the population.

Monosodium glutamate (MSG), a flavour enhancer, falls into this group. MSG is a controversial ingredient but only a small percentage of consumers show adverse reactions to the product. The Joint Expert Committee on Food Additives of the U.N.'s FAO and WHO has placed MSG in the most favourable category for a food ingredient. It must also be borne in mind that glutamate is a natural component in many foods, such as mushrooms, tomatoes and peas and is found in significant quantities in breast milk.

Salt is an important flavourant, and also has other properties when added to food. There are several separate articles on it on the FACS website.

- **Affecting Temporal Characteristics**

- **Preservatives**

These substances inhibit or retard the growth of micro-organisms which could have a detrimental effect on food spoilage or the safety of food. Examples are sorbates, benzoates and sulphur dioxide (and sulphur dioxide is also used to prevent browning in certain foods). Preservatives should be viewed in the context of food poisoning which is on the increase world-wide. It must be emphasised that food poisoning is an infinitely greater risk to human health than the consumption of any food additives and preservatives play a key role in reducing the risk of food poisoning.

- **Antioxidants**

These are used in oils and foods containing oil or fat to delay the development of rancidity.

- **Curing and Pickling Agents**

These will preserve foods and additives used are salt with sodium nitrate or sodium nitrite (curing of meats) and salt brines and lactic acid followed by vinegar (vegetables).

- **Affecting Nutritional Characteristics**

In this category we find vitamins, minerals and amino acids.

In all populations, even in western society, the intake of certain nutrients is below the recommended daily allowance (RDA) or nutrient reference value (NRV) for the nutrient concerned. The requirements for specific nutrients will depend on the country and its food habits. When based on scientific evidence, the addition of nutrients to food can have a significant effect on a population's nutritional status.

### **Regulatory Aspects**

The safety of food additives is a key concern. For this reason the type of additives allowed, the food for which it is intended and the levels permitted are controlled by the Foodstuffs, Cosmetics and Disinfectants Act, 1972. South Africa is also one of the member countries, out of about 150, of the Codex Alimentarius Commission which was established in the early 1960's to implement the Joint FAO/WHO (United Nations) Food Standards Programmes. This ensures that regulation of South African food is up to world standards. Additives also have to be labelled by law - see also Food Labelling, another of the FACS discussion papers.

It is important that responsible use is made of additives. Any new additive is subjected to sophisticated and costly biological testing, comparable to that used for pharmaceutical products, before it is released into the market and has to be approved by the Joint Expert Committee on Food Additives (JECFA), a body falling under the FAO & WHO. This means that consumers can consume food additives with the confidence that they are safe.

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