



# Food additives and preservatives

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S C I E N T I F I C



# FOOD ADDITIVES AND PRESERVATIVES

- Additives and preservatives are chemical substances added to food.
- They play a role in maintaining a tasty, nutritious and safe supply of food year-round to our growing urban population.
- Without additives and preservatives a great amount of food on shop shelves would spoil before being bought.
- Additives and preservatives can be broadly grouped by their functions.

## **Preservatives**

- They extend the storage life of food by stopping bacteria and moulds from spoiling them and making them unsafe to eat.
- These include sulphur dioxide, sodium benzoate, nitrates, sorbic acid, vinegar, sugar, and salt. Preservatives are also present in some medicines.

## **Anti-oxidants**

- Under normal circumstances fats and oils combine with oxygen in the atmosphere causing a rancid "off" flavour. Anti-oxidants stop fats and oils from going rancid.

## **Emulsifiers and stabilizers**

- These are used in mixed foods to prevent oils and water from separating. (e.g. Calcium alginate in ice cream).

## **Flavour enhancers/Flavourings**

- Artificial flavourings in food. (E.g. MSG and aspartame).

## **Colourants**

- These make food more colourful; two examples are sunset yellow and tartrazine.

# FOOD ADDITIVES AND PRESERVATIVES

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## Nitrates

- Nitrates act as a preservative in some foods and are also used for curing processed meat.

## Anti-caking agents

- Stops powdery foods such as icing sugar or salt from forming lumps.

## Humectants

- Substances which absorb water vapour from the atmosphere and prevent the food from drying out and becoming hard and unpalatable (e.g. Glycerine added to royal icing).

## Nutritional Enhancers

- These may include vitamins, minerals, soy protein, and milk protein.

## ARE ADDITIVES SAFE?

- The vast majority of additives and preservatives appear to be safe for most people. Laboratories throughout the world have tested them before they are used in foods. However some individuals may be “sensitive” to various additives and preservatives.
- In some individuals, these substances may result in bad reactions and may include: vomiting, skin rashes, hives, worsening of eczema, tight chest, headaches and many other symptoms, including anaphylaxis. History of foods and symptoms may give your doctor a strong clue as to the additive causing the reaction. There are blood tests available for most of the common additives.
- Some foods have natural chemicals that may exert an effect. Tuna fish that’s not fresh may have a high level of histamine. You may react to the naturally occurring histamines in wine and not to the sulphur dioxide that has been artificially added.

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## PRESERVATIVES

These chemicals have E numbers E200-299

### Sulphites

- Sulphites are numbered E 220-229 and include Sulphur dioxide, Sodium sulphite, Sodium Bisulphite, Sodium Metabisulphite, Potassium Bisulphite and Potassium Metabisulphite.
- They cause lung irritation and may trigger asthma. Many people also complain of a scratching feeling at the back of their throats. They are commonly found in liquids in cold drinks and fruit juice concentrates, but also in wine and beer. They are also sprayed onto foods particularly fruit to prevent discolouration and browning. Sulphur dioxide is used to preserve smoked and processed meat, dried wors, dried fruit, pickles, and some sauces. In topical preparations sulphur can cause a contact allergy.

### Benzoates

- Benzoates are numbered E 210-219 and include Sodium Benzoate, Monosodium benzoate and potassium benzoate.
- Benzoates have antibacterial and anti-fungal properties for the prevention of food spoilage. These agents are added to pharmaceutical and food products such as drinks like sugar free cold drinks and occur naturally in prunes, cinnamon, tea and berries. They may cause hives, wheezing or body swelling.

## FLAVOUR ENHANCERS

These chemicals are numbered E600-699

### Monosodium Glutamate

- Eating foods with this additive can result in tight chests in asthmatics. This may occur immediately or 6-to 12 hours later.
- "Chinese Restaurant Syndrome" causes headaches and a burning sensation along the back of the neck, tight chest, nausea, sweating and a sensation of facial pressure. "Pins and needles" or tingling may be felt in the limbs or face and head. It occurs approximately 20 minutes after a food containing MSG has been eaten and is more pronounced on an empty stomach.
- MSG is commonly found in packet soups, 2 minute noodles crisps and most fast foods.

# FOOD ADDITIVES AND PRESERVATIVES

## COLOURANTS

These chemicals are numbered E100-199

- Colourants may be natural or synthetic. The best known colourant is tartrazine (E 102). Tartrazine is an azo dye, which cross reacts with all of the azo dyes. Tartrazine is found in fruit juices, soft drinks, sweets, desserts, toppings, syrups, cooking oils, sauces and pickles.

## SWEETENERS

### Aspartame E 951

- It is a white, odourless powder, approximately 200 times sweeter than sugar. It is used as a food additive in drinks, desserts, sweets, dairy, chewing gums, and as a table-top sweetener. This low calorie sweetener can occasionally cause hives.

## DIAGNOSIS/MANAGEMENT

- Besides the use of blood tests, a patient may be asked to keep a food diary and record all the food eaten, the time it was eaten and when the reaction occurred. Ultimately a food challenge might be necessary to make the diagnosis. (See food challenge tests)
- Read labels on foods very carefully and avoid all food that may contain the preservative or additive.



- If the symptoms that you are experiencing are severe you might need to have an action plan, wear a medic alert disc and carry an adrenaline auto-injector with you.



A medical specialist with a special interest and skill in allergy might be able to help. See the list of health professionals with skills in allergy on the AFSA website.