

## Additives

Additives in pet food serve various purposes: the first one is to provide nutritional benefits, e.g. vitamins, the second purpose concerns technological additives for safety and maintaining the desirable features of texture, stability and resistance to spoilage and lastly there can be sensory additives providing the right color and flavor.



The term 'additive' can be applied to a range of ingredients that manufacturers add to the basic ingredients that are at the heart of pet foods. These minor ingredients include essential nutrients such as vitamins and minerals, but also flavors, colors and agents to prevent harmful spoilage of the foods due to fats going rancid or through bacterial contamination.

Vitamins and minerals are presented in the factsheet 'Nutritional needs of Cats and Dogs'.

## Preservatives

Pet food safety is of critical importance. Preservatives (including antioxidants) may be added, largely depending upon the type of pet food product and processing, to ensure that food products remain nutritious and safe for consumption throughout their shelf life. The food must be protected from bacterial or mold contamination and spoilage, further it must be protected from degradation and the loss of nutrients during storage. The method of preservation used depends on the type of food because the way of processing also contributes to the food integrity and shelf life:

- **Dry foods:** the manufacturing process kills microbes and the low moisture content helps to inhibit the growth of most organisms.
- **Moist foods:** the heat applied in cooking of canned or pouch foods kill microbes and the packaging excludes air, protecting the food.
- **Chilled foods:** processed chilled foods have undergone a controlled thermal process and this, together with refrigeration during storage helps suppress spoilage.
- **Semi-moist foods:** these generally have a low pH and contain humectants that bind water to the product, making it less available for use by invading organisms.

## Antioxidant preservatives

Antioxidants are preservatives used to protect foods from deterioration due to oxidation. All pet foods have some fat and/or oil content and these should be stabilised by including antioxidants to prevent fats from reacting with oxygen in the air (oxidising) and food becoming rancid which leads to losses in nutritional quality. The inclusion of antioxidants helps to maintain wholesomeness and quality of the food. Antioxidants are incorporated into dry and semi-moist foods to protect them from exposure to oxygen after processing. These are not generally added to canned foods because these are cooked at high temperatures in the can, thereby “sterilising” the contents in

sealed, airtight containers. Spoilage can occur if the can is damaged or if left too long after it is opened.

Antioxidant preservatives that might be included in dry pet foods include: a variety of herbal or plant extracts including: vitamin E (tocopherols), rosemary extract, citric acid, vitamin C (ascorbates) or man-made antioxidants, which have been used in various human foods for many years.



## Antimicrobials

Antimicrobial agents help protect food from potentially harmful spoilage organisms including mold formation or bacteria.

## Coloring agents

Coloring agents may be added to pet foods to enhance the appearance of the food. These include a range of naturally occurring food colors, food dyes or mineral based colors.

## Emulsifiers and stabilisers

Emulsifiers help keep the fat in the food and prevent the water from separating. Gums, lecithin, glycerin and modified starch are used to prevent separation of ingredients and to create the gravy or gel in canned, pouch and other moist pet foods. Food gums include seaweed extracts and seed gums such as guar gum (from the guar plant).

## Flavors

Flavors are used to enhance the palatability in some foods and to provide product variation. Much of the appeal of prepared pet foods to the dog or cat stems from the choice of raw materials, such as fish, meat, vegetables or cereals. As with many foods for humans, the cooking process often increases the palatability of many foods. Some flavors may be added to some pet foods and these can be natural flavors such as extracts from fish or poultry, or agents designed to mirror natural flavors.

