

The Utility of Nitrogen in Food Aerated Packaging

Among the causes of food spoilage, the role of microorganisms is often the most important. Food itself is a good culture medium for microorganisms, if the food is exposed to the air stored at room temperature, it provides good conditions for the growth and reproduction of microorganisms, especially meat, fish, eggs and vegetables and other water-containing, nutrient-rich animal or plant foods, microorganisms in which they can grow and reproduce rapidly, promote the rapid decomposition of food nutrients, so that it is decomposed from polymer materials into low molecular matter, resulting in the deterioration of food quality and ultimately spoilage and corruption. This will lead to the deterioration of food quality and eventually spoilage and corruption. Microorganisms that can cause food spoilage and corruption include bacteria, yeasts and moulds. Among them, the deterioration caused by the action of bacteria is the most significant.

The deterioration of food also lies in the action of enzymes. Enzymes are biological catalysts that induce chemical changes without consuming themselves. Both animal and plant foods contain enzymes. Under the catalytic effect of enzymes, biochemical reactions occur, causing food spoilage. The increase of spoilage products, such as amino acids, creates favourable conditions for the reproduction of spoilage

microorganisms and accelerates the deterioration and corruption of food. Moreover, in the process of microbial life, it will produce a variety of enzymes. It can be seen that microorganisms and enzymes promote the deterioration and corruption of food.

Some of the chemical reactions that cause food spoilage are not directly related to enzymes. Such as food stored in the air, the oils and fats contained in direct contact with the oxygen in the air oxidation reaction occurs, the generation of ketones, aldehydes, acids, ethers, lactones and other organic substances, while the viscosity and specific gravity of the fat itself increases, resulting in an unpleasant ha ha odour, known as oxidative rancidity of fats and oils, commonly referred to as the oil ha.

The presence of peroxides in fats promotes the acceleration of rancidity, which leads to the deterioration of food and the loss of its commercial value. In addition to fats and oils, vitamin C in foods is easily oxidised into dehydrovitamins in air. Dehydrovitamin C can continue to decompose, and finally produce diketogulose acid, then lose the physiological efficacy of vitamin C.

Foods exposed to the air, under the action of oxygen, there will also be changes in colour. Such as raw meat in the air after a period of time, its colour will change from purple red to bright red, and then to brown. This colour change, is the animal muscle tissue pigment myoglobin, by the air in different ways and degrees of oxygen caused by the action. Again, such as tomato pigment, by the eight isoprene platform, the structure has more conjugated double bonds, easy to be oxidised by oxygen in the air. Others,

such as carrot pigments, are also susceptible to oxidation. Oxidative changes in food colour will naturally reduce the original quality of food.

In summary, food deterioration and corruption caused by the phenomenon, almost all directly or indirectly with the presence of oxygen in the air, that is to say, the presence of oxygen, is caused by food deterioration of an important external factors, the storage of food plays a harmful role.

Therefore, in order to prolong the custody and storage period of food, how to find ways to artificially isolate food from oxygen in the air, do not allow it to contact with oxygen, to prevent the oxidation of fat and other microbial reproduction, when it is one of the research topics of food preservation technology. At the same time, make the food and air isolation, but also can effectively prevent the food in the water from its surface evaporation or sublimation to the air, that is, to overcome the phenomenon of dry consumption. Dry depletion will not only reduce the weight of the food, but also inevitably accompanied by a decline in quality, such as reduced flavour, surface shrinkage, colour change, and promote oxidation, thereby accelerating the deterioration of food. Therefore, to prevent and reduce the occurrence of food in the preservation of the phenomenon of thousands of consumption, but also to avoid the rapid deterioration of food, to maintain its inherent commodity value of an effective way.

Shrink packaging of food, vacuum packaging, inflatable packaging and other forms of packaging principles, is based on trying to make food does not come into direct contact with the air, and oxygen isolation up and can effectively prevent the oxidation of food fats and other nutrients and microbial

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