

The Proton Magnetic Freezing and its Influence on Nutrition and Other Aspects

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Reduce food waste losses thanks to the latest generation of freezers that keep all food characteristics fresh.

“It is not good, it shows that it is frozen”, “Frozen foods do not taste so good” are very common phrases that condemn frozen products as second class products.

Ryoho Freeze Systems, a Japan manufacturer of freezing equipment has solved this problem through its proton magnetic freezing technology.

Thanks to this technology, it is now possible to freeze all types of food without altering its freshness or taste and preserving all the original organoleptic qualities both in raw foods (meat, fish, bread, cakes, sushi, etc.) and in cooked foods.

The reason why the taste and texture of a food get worse when thawing is explained by its water content, which during the freezing process transforms from liquid to solid water, forming large ice crystals and damaging its cellular structure, which causes losses of flavor and nutrients in the form of exudates during defrosting.

But the introduction of the use of electromagnetic fields in freezing has meant a real revolution as it meant in the medical field.

Proton freezing technology uses a combination of magnetic flux, electromagnetic waves and cold air that cause water molecules to sort.

Indeed, with proton the food freezes while a static magnetic field and an electric wave radiate in a predetermined direction which prevents the expansion of the volume of ice crystals and inhibits both the change in the volume and the destruction of the cells, preventing cell breakage at the time of defrosting. This avoids all changes in food that occur in normal freezing (damage to muscle structure, protein denaturation, moisture loss, decreased juiciness, microbial alterations, nutrient losses), currently being the only freezing technology that keeps intact all the organoleptic characteristics of the food preserving its freshness, flavor, texture and original color.

With proton all drip losses that normally occur when defrosting disappear, being also the only technology that allows a food that has been previously defrosted to be re-frozen.

It should be noted that at the time of defrosting, there is less than a third of the normal amount of water due to losses of water content caused during freezing.

Thanks to this freezing technology, the reduction and loss of food waste can be reduced, allowing the production of safe food products, without the use of additives and that fully comply with the legal sanitary regulations and can be kept in perfect storage conditions (in normal chambers freezing) for more than one year.

Being able to prepare in advance products for which demand is concentrated in a limited period of time (events, etc.) also represents a significant benefit in terms of both time and labor savings.

PROTON also allows you to consume quality products throughout the year, taking advantage of the possibility of provisioning when prices are cheaper.

In addition, it also facilitates the possibility of consuming seasonal foods throughout the year. It is also possible with proton, to eat exclusive foods from a region anywhere in the country with the same quality as if it were fresh.

It is already possible to experience the future of food logistics using this freezing technology in proton dining restaurants located in Nara and in several cities in Asia (Malaysia, Singapore, etc.). The à la carte dishes of these restaurants, specialized in French and Japanese haute cuisine, are prepared in advance at the company's factory in Okinawa (at the other end of Japan). Fresh ingredients from all over the country are sent to this factory to be frozen using proton technology.

In the restaurants, only the defrosting of the food of each order and the assembly of the dish is carried out, which allows to have a fast meal service with a minimum of personnel and avoiding any loss due to waste and food waste.

Proton, likewise, is the only technology recognized in Japan to freeze sushi because it makes a perfect freezing of rice and seaweed and fish for sashimi.

In addition to maintaining the quality of food as fresh (as it has created a new category: “Fresh frozen food”) in Japan, they also value the positive effect that proton has on health (fully maintaining the original properties of food and its nutritional values and eliminating populations of bacteria, microorganisms and parasites (anisakis in the products of the sea)) and that it is a clean technology (only uses electric current, magnets and cold air), without using additional gases that affect the environment.

Proton, in addition to its speed, eliminates the rest of the negative factors of cryogenic freezing technologies such as nitrogen (gas cost per kg, Aggressiveness, danger, etc.).

In Japan its use is widespread.

Many producers send their raw materials (fish, meat, vegetables, bread, etc.) fresh to the Okinawa plant to be frozen and distributed by PROTON or they themselves freeze them with this technology and distribute them directly, being able to find the products thus frozen in most supermarkets and “konbinis” (convenience stores) of the country, as well as in the commented restaurants (proton dining chain), there is even the possibility of enjoying a home freezing service (proton car).

There is also hope that freezing with proton can be applied to the field of regenerative medicine.

Even when ultra-low temperature medical freezers are used, the survival rate of the cells is approximately 40%. With the use of proton it has been possible to raise the survival rate to more than 80%.

Proton Europe exclusively distributes this technology for Europe and Asia and has a Show Room in the C.I.B. (Culinary Institut De Barcelona) where freezing tests are carried out and where the differences between a frozen food with proton and the same frozen in the traditional way can be verified.



Figure

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