

HOW FREEZE-DRYING WORKS



Freeze-Dried vs. Dehydrated

Freeze-drying, as compared to other drying processes such as dehydrating or air drying, is better at retaining the characteristics of the raw food. It is well known that freeze-drying preserves the original components and results in reconstituted textures that most closely approximate the original. In effect, freeze-drying is the drying process available to food processors. It is not used much because its cost is much higher than other processes. The ability to minimize damage to food attributes is the reason for claims that the process is also less damaging to enzyme activity. That is, enzymes (still able to catalyze chemical reactions) in a freeze-dried food than in some raw materials.

Perhaps a clearer example would be to consider that freeze-drying is the method of choice for preserving enzyme activity, or even entire organisms, in a dry sample. Freeze-drying is the only good way to preserve life that can still be said to be alive.

Freeze-drying's ability to better maintain the nutritional properties of food is documented in many studies. A comparison of drying methods shows why: proteins can be denatured by high temperature, oxidation, or by reactions with other cell components, often other proteins.

The process involves freezing a fresh food (fruit, vegetable, cooked meat or fish) in a special "freeze drying chamber," then removing the water by quickly changing the chamber's pressure and temperature. This causes the water in the food to change from a solid to a gas without ever changing back into a liquid. This "quick change" preserves the cell structure of the food without compromising vitamins, nutrients, color or aroma. Freeze-drying occurs in an oxygen-free vacuum at temperatures as low as -85 degrees F and since the product being dried is in a frozen state, there is little mobility at the molecular level-and if molecules can't move, they can't react with each other either. Dehydrating or cold air drying, on the other hand, is done in normal atmospheres at much higher temperatures; and since moisture in the product is in the liquid phase, denaturing can occur; higher temperatures and mobility will make it happen faster and more often.

While freeze-drying, or lyophilization, is the best way to preserve all the qualities found in fresh meats, fruits and vegetables equally important are the quality of ingredients. All of our ingredients are USDA Inspected and Approved and 87% are sourced domestically. Our protein sources are hormone and antibiotic free. We remain committed to sourcing our ingredients from local restaurant suppliers and bringing your pets the absolute best food and treats possible.

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4. When the water is replaced, the food retains its original fresh flavor, aroma, texture and appearance.



Advantages

Shelf-Stable

Since the water and oxygen have been removed from freeze-dried food it does not require refrigeration when stored and is; therefore, considered to be "shelf-stable" or safe to store at room temperature for long periods of time.

Lightweight

The main source of weight in food is the water it contains. All fresh foods contain water; however, once the water has been removed, the weight can be reduced by as much as 70% - 90%. For example: a package containing one pound of frozen cooked chicken will weigh a mere 4 ounces once freeze-dried. Now that's a significant reduction in weight!

Fast Rehydration Time

Freeze-dried foods are very moisture sensitive; therefore, they will rehydrate in a matter of minutes when added to warm/hot water. Many freeze-dried items can be reconstituted with cold water as well, but may take longer to achieve their full moisture level. Unlike dehydrated food, most freeze-dried fruits, vegetables and meat can be eaten raw (without adding any water) and usually have the crispy texture of a chip.

Cooking Tip: Freeze-dried foods are pre-cooked; therefore, due to the quick rehydration time, freeze-dried food may be incorporated into any pet food recipe toward the end of the cooking cycle to lend a more "fresh crunch" texture to the dish or to retain a more "fresh food" flavor.

Taste

Freeze-drying uses very low levels of heat so most food closely retains the taste, texture and aroma of its fresh

counterpart. Most people believe that the flavor of freeze-dried foods are superior to dehydrated. Unlike dehydrated food which require total meal preparation, soaking, mixing, cooking, and much more clean-up, FREEZE-DRIED foods require NO COOKING, NO-PREPERATION and little, if any, clean-up which makes them ideal. Just add hot water (cold in a pinch), wait 3-5 minutes and serve.

Our Facility

