

Spotlight on Milne MicroDried® Ingredients

Abstract

The innovative, patented MicroDried® process produces dried fruit and vegetable ingredients that have multiple benefits in the development of new cereal products. MicroDried ingredients are 100% fruit and vegetable solids with no added sugar, preservatives, or colors needed in the development of clean label products. MicroDried ingredients are easy to use in production environments and have a long shelf life, which facilitates efficient supply chain management of ingredients. These easily customized ingredients provide the product developer with innovative fruit and vegetable ingredients for new, trend-setting products. <https://milnemicrodried.com/>

Q: What are MicroDried Ingredients?

A: The MicroDried process is a patented process that uses microwave technology to heat the fruit or vegetable coupled with a vacuum oven to remove the moisture. This process effectively removes water without exposing the product to high or excessive heat, preserving natural color, flavor, and nutrients. The resulting ingredients are low in moisture and are 100% fruit or vegetable solids, with no added sugar, preservatives, or colors.

Since the ingredients are 100% pure fruit and vegetable solids, these ingredients readily lend themselves for use in products that require clean labels. This unique process also results in a product that has a reduction in the overall

microbial load. This reduction is a major benefit when fruits and vegetables are to be used in sensitive food systems such as dairy. These ingredients are shelf stable due to their inherent very low moisture (4.0% – 7.0%) and water activity (≤ 0.55).



Q. What products are produced by the Milne MicroDried process?

A: Milne MicroDried has a long history of meeting customer requirements for high-quality dried fruit and vegetable ingredients. The MicroDried team has the expertise and experience to find, purchase, and process a wide variety of fruits and vegetables. The MicroDried product line currently has over 35 varieties of standard and trendy, easily customized ingredient products.

The process lends itself well to delivering a wide range of product sizes, from whole fruit and vegetable slices, dices, cubes, and powder. The MicroDried process is easily modified to meet customer requirements for such attributes as size, shape, and screen sizes, as well as texture, water activity, and moisture content. The low water activity of the finished product provides exceptional color and flavor stability to the ingredient and an exceptional long shelf life. To meet the growing market demand for organic products, MicroDried has many varieties in organic format.

Q: What are the benefits and functionality of MicroDried Ingredients?

A: MicroDried technology produces an ingredient that, while similar to the freeze-drying process, maintains a more functional cellular nature of the fruit and its color. This retained structure makes the finished ingredient much more resistant to physical abuse and breakdown and improves piece identity and eye appeal. Freeze-dried products produce a lot of dust due to the porous structure of the pieces. Because MicroDried does not involve a sublimation process, the product is less likely to produce “dust.”

The MicroDried drying process produces an ingredient that is very low in bulk density, which provides more pieces per unit volume when compared to sugar-infused, dried fruits or vegetables. More pieces per pound improve the show of solids and eye appeal in consumer products. Fruits and vegetables are grown in the natural environment and, therefore, have the potential for a relatively high microbial load when received at the processing plant. The MicroDried process involves a heating step that greatly

reduces the microbial load of the finished product and provides a high level of food safety to the finished goods. This heating step can also reduce/eliminate enzyme activity in the raw product, which will ensure the final ingredients have great texture. An often overlooked benefit of MicroDried products is their ease of use, as the pack size makes blending or mixing in a production setting very simple. Transportation and storage of MicroDried ingredients are also a benefit in the production environment.

Q: What are the key markets or applications that use MicroDried ingredients?

A: MicroDried fruits and vegetables are used in a wide variety of food and pet products. Attributes such as low water activity, low bulk density, ability to maintain piece identity, and stable color and flavor make these ingredients ideally suited for innovative new product development. The cereal category is a prime area for utilization of these products where piece integrity is critical to not producing dust/powder during the mixing and blending process. MicroDried ingredients can be used in shelf-stable cereals and instant hot breakfast cereals where dried fruit has traditionally been used. New hot cereal products are now showing up in the market containing trendy additions of dried vegetables such as cauliflower, beetroot, or mushrooms. The addition of dried vegetables into instant noodle products, such as mac and cheese, provide an avenue to a veggie serving claim. The bakery category has also seen many applications of MicroDried ingredients in such items as scones, breakfast muffins, and dustings on sweet goods. MicroDried vegetables have also seen use in breads to provide a marketing claim. New MicroDried products, such as powdered orange and lemon, have the potential for adding a zesty natural, clean label coating to sweet bakery products such as donuts and cookies. A unique application is the use of MicroDried ingredients, such as beetroot, carrot, or aronia, as a natural colorant in items designed for clean labels. MicroDried products have also been used in dried meat applications where low moisture and piece identity add visual appeal to dried jerky. The ingredients have found their way into pet foods, such as dog treats, where they add visual appeal and marketing claims.

MicroDried products have many applications in the beverage, tea, and nutraceutical arena. Dried fruit and vegetable products are a natural for tea applications, where they add marketing claims, flavor, and visual appeal. MicroDried ingredients, such as pomegranate arils, can add texture and market claims to beverage applications. Nutraceutical applications include the use of high-antioxidant powdered fruits such as cranberry and aronia for use in capsules and tablets.

Overall, the unique qualities of MicroDried fruits and vegetables lend themselves to a myriad of applications, including cereals where 100% pure fruit and vegetable ingredients add to the consumer appeal of the product. The uses of MicroDried fruits and vegetables appear limitless.

