

DEHYDRATION TECHNOLOGY FOR FOOD & FOOD CULTURES



nutraREV™ for Food Dehydration







EnWave's *nutraREV™* technology uses a combination of vacuum pressure and microwave energy to deliver a high-speed, low-temperature food dehydration process. The technology is significantly more energy and cost efficient than typical freeze drying and comparable to air drying methods. *nutraDRIED™* products have demonstrated improved flavour, colour, texture and nutrient retention, depending on the application.

In 2009, EnWave completed the sale of its first continuous *nutraREV™* technology to CAL-SAN Enterprises Ltd., a major blueberry producer in Richmond, B.C. Since that time, EnWave has signed Research and Development Agreements with Nestlé SA, Kellogg Co, Bonduelle, Ocean Spray and a Collaboration Agreement with Grupo Bimbo SA involving *nutraREV™*.









nutraDried™ Applications

EnWave's *nutraREV™* technology is currently designed to produce up to 100 kg (220 lbs) of dried product per hour, and can be used to dry:

-  Low-fat snacks
-  Ingredients
-  Nutraceuticals
-  Functional foods
-  Dried fruits, vegetables and herbs
-  Dried meats and seafood

Benefits of *nutraREV™* over Conventional Methods of Dehydration

EnWave has shown that *nutraDRIED™* products can demonstrate the following benefits over conventional food dehydration methods:

-  High-speed processing in minutes or hours rather than days
-  Significant reductions in energy usage and start-up costs
-  Outstanding retention of vitamins, nutrients, flavour and colour
-  Continuous processing which has the potential to reduce large batch losses
-  Creation of new product attributes such as "puffing"
-  Flexible final moisture content with stable water activity

EnWave's continuous *nutraREV™* technology is designed to be significantly less expensive to purchase than a commercial-scale freeze dryer, it uses much less energy to operate, and it dehydrates food in minutes or hours rather than days.

Operating Comparisons*:

	<i>nutraREV™</i>	Freeze Dry
Initial drying temperature	30°C to 50°C	-50°C to -20°C
Final drying temperature	45°C to 60°C	30°C to 50°C
Drying time	0.2 to 2 h	24 to 36 h
Labour	4 FTE	8 FTE
Energy costs	\$0.23 per kg dried product	\$0.66 per kg dried product
Capital costs	\$0.13 per kg dried product	\$1.19 per kg dried product

* Data presented for berries, operating benefits and comparisons to freeze drying will vary by product.