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Saturday, 01 October 2005

## Orem business uses cryogenics to flash freeze ice cream

GRACE LEONG - Daily Herald

Imagine having a cheesecake amaretto butterscotch flavored ice cream made to order before your eyes in just 15 seconds.

All you need is an ice cream, yogurt or custard mix, flavoring, and a good dash of liquid nitrogen, says Jerry Hancock, founder of Sub Zero Ice Cream in Orem, and a former Novell software engineer with a chemistry degree from Brigham Young University. As the mixture freezes, liquid nitrogen starts to evaporate, creating a fog. Fifteen seconds later, the frozen treat is ready.

The idea of using cryogenics -- which refers to a branch of physics that deals with the production and effects of very low temperatures -- to make ice cream isn't new.

But the technology may well change the way the frozen dessert is made in the \$20-billion-a-year industry. Already, several variations on the theme exist -- from Dippin' Dots, or tiny flash-frozen "dots" of ice cream to a recent discovery by an MIT student who used liquid carbon dioxide to create a frozen treat that packs a carbonated bite.

Inspired by the food industry's practice of using liquid nitrogen to flash-freeze vegetables, fruit and meats, Hancock found that by controlling the amount of liquid nitrogen used to freeze ice cream, he can create a frozen treat of varying textures and also allow his customers to determine the type of flavor mixes they wanted.

Customers have a choice of four base mixes -- premium custard, low fat ice cream, yogurt and a non-dairy rice milk mix -- as well as any number of flavorings they want from the store's offering of 40. They can also add other ingredients such as brownies, fresh fruit, cookies and candy bars to the mix.

Hancock's method differs from the traditional way ice cream is made. In dairy factories, ice cream mix is typically fed into a chilled pipe and frozen. Beaters whip the mixture, incorporating air into the product to make it fluffier. The whole process typically takes more than a few minutes, after which the semi-soft product is ready for mix-ins or packaging.

"Our ice cream isn't whipped, so it tastes richer," he said. "Instead of using stabilizers to reduce the formation of ice crystals in the ice cream, we flash freeze the ice cream at minus-20 degrees Fahrenheit. The faster you freeze the ice cream, the smaller the ice crystals, the creamier the product."

Hancock also estimates that the liquid nitrogen method could cut the energy used to make frozen desserts by as much as 90 percent. "Our method also saves us from having to deal with issues traditional ice cream makers encounter. For instance, when you ship traditionally-made ice cream from a low pressure environment in the mountains to a higher pressure atmosphere, the product shrinks because the higher pressure environment would squeeze the air out of it. Since we don't make our ice cream until it is ordered, that's not a problem for us."

Because his ice-cream making equipment is fairly mobile, Hancock says he is able to promote his ice cream at schools and county events such as Freedom Festival, Lindon Days and even the eastern Idaho State Fair. He is also considering starting a concessionaire business in movie theaters and theme parks.

But the idea for the custom-made ice cream business came from Hancock's need to augment sales and customer traffic at his other business, New York Burrito Gourmet Wraps, a fast-casual Mexican food franchise that opened in 2003 at the same 2,500-square-foot location at 934 N. State St. in Orem.

The burrito restaurant is currently making a little more than half of its targeted daily sales, due in part to a lack of marketing support from the New York Burrito's franchisor, Ultimate Franchise Systems, which he says had nine restaurants in Utah at one point, but now has only around three.

"Our location is horrible. It's difficult to see the building because of obstruction by the awning. And even though traffic along State Street is good, not many people notice us. We can't put out banners and flags along State Street because that's considered illegal in Orem," Hancock said. "We also had too much space for what we needed, so we had to find another product we can sell to bring in more traffic. There aren't many ice cream parlors in north County, so that's why we started the business."

He says his ice cream business brings in a few hundred dollars in sales daily, which is less than that of ice cream franchises like Coldstone Creamery. "But we're new. And unlike Coldstone, we don't have walk-by traffic or evening traffic because we're not located near a big mall or movie theater. We take into consideration the fact that people have to travel to get to us. They have to seek us out."

To overcome visibility problems, Hancock is promoting his business through movie advertising at University Mall's cinemas, and also through scientific demonstrations of how his ice cream is made at several schools in Utah. He also offers discount cards to college students at BYU and UVSC, and high school students at Timpanogos High.

"Unlike Coldstone, which entertains their customers by blending their ice cream and mix-ins on a frozen granite stone, we entertain our customers by making the ice cream right before their eyes. You can hear the ice cream sizzle as liquid nitrogen evaporates, creating a condensation cloud as the mixture freezes," Hancock said.

Sub 0 Ice Cream doing business as Sub Zero Ice Cream Cryo Creamery

Owners: Jerry and Naomi Hancock, parents Vern and Elouise Hancock

Founded in June 2004



2/12/2009

## Orem business uses cryogenics to flas...

Industry: Ice cream maker and retailer

Location: 934 N. State Street in Orem

Start-up costs: \$40,000

Retail prices: \$2 for 4 ounces for one mix and as many flavors as you want; \$4.50 for 10 ounces

Work force: Eight workers

Contact: 434-4475

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