

August 28, 2009

Sojitz Corporation

## **Sojitz Pla-Net**

### **Nationwide Cold Chain Constructed Using Unique Freezing Technology**

**—Business for Food Containers that can be Used to Heat and Cook Frozen Foods in a Microwave Reinforced—**

Sojitz Pla-Net Corporation (Minato-ku, Tokyo; President: Toshihisa Horikoshi), a wholly-owned subsidiary of Sojitz Corporation that markets synthetic resins, has reached agreement with Tachibana Packaging Co., Ltd. (Oda-gun, Okayama Prefecture; President: Kunio Okano) and Ryoho Freeze Systems Co., Ltd. (based on Nara City, Nara Prefecture; President: Kazunari Ninomiya) concerning a business tie-up regarding distribution of frozen foods such as frozen rice and frozen prepared foods using a unique freezing technology. Sojitz Pla-Net aims to create a nationwide cold chain (a low temperature distribution network) covering upstream to downstream using Chef Pack, food containers developed by Tachibana Packaging that can be used to heat and cook foods in a microwave oven, and proton freeezing, a unique freezing technology developed by Ryoho Freeze Systems.

It is believed that the prepared foods industry, which has made calorie adjustments in response to adult-onset diseases such as developing formula diet meals and nutritional management meals, will continue to expand in the future as Japan's population ages. Adjusting the caloric content of foods, however, takes additional time and incurs costs, and such foods cannot be preserved for extended periods, and as a result, maintaining the quality of foods and offering frozen foods that can be cooked easily are essential. According to a survey conducted by the Ministry of Agriculture, Forestry and Fisheries, a total of 22 million tons of food waste is produced annually, of which 11 million tons is generated by households. Food waste resulting from leftover food and food that has passed its expiration date is a growing problem. Frozen foods are attracting greater attention because they use unique freezing technologies to maintain the flavor of food, have longer preservation periods than room-temperature and chilled foods, and can reduce waste.

Sojitz Pla-Net has been producing Chef Pack products, food containers developed by Tachibana Packaging that can be used to heat and cook frozen foods in a microwave oven, since 2007. In addition to conventional foods, Chef Pack products are used for

nutritional management meals that can be frozen such as low-insulin prepared foods and calorie controlled foods demand from hospitals and diabetes management facilities is expected to grow in the future, and Sojitz Pla-Net began reinforcing its structures for full-scale marketing of Chef Pack products this year.

Chef Pack products are food containers that can be heated and pressurized in a microwave oven while sealed with a top-seal film. As the food is heated in the microwave oven, a function to release the pressure operates when steam holes open automatically, and water vapor remaining in the container is used to heat the food together with the microwaves. Thermal conductivity is high, and steam heated to temperatures in excess of 100°C comes in contact with the food to prevent uneven and partial heating. It is also expected that the products will contribute to energy saving by reducing heating times.

When constructing the nationwide cold chain, Sojitz Pla-Net will utilize a freezing technology known as proton freezing using Useful Freezers, unique freezers developed by Ryoho Freeze Systems, to maintain the freshness and quality of foods. With conventional freezing, ice crystals become large and food flavor is lost during defrosting, resulting in a significant deterioration of quality. When proton freezing is used, the effects of magnetism and electromagnetic waves are used to keep the ice crystals as small as foods freeze, preventing cellular destruction of the foods and making it possible to maintain quality at high levels.

By using Chef Pack products with proton freezing, it is possible to achieve ease of cooking frozen products and maintain product quality while reducing losses from food waste. Useful Freezers have been installed in approximately 70 locations nationwide, which will make it possible to gather fresh frozen foods from around the country.

As it constructs the nationwide cold chain, Sojitz Pla-Net will increase sales to facilities that handle food products for seniors and calorie-controlled foods, the markets for which are expected to grow in the future. Sojitz Pla-Net expects sales in the Chef Pack business to expand to 1.0 billion yen in 2011. In addition, the strength of the entire Sojitz Group will be used to reinforce logistics related businesses and increase income.

#### Overview of Tachibana Packaging

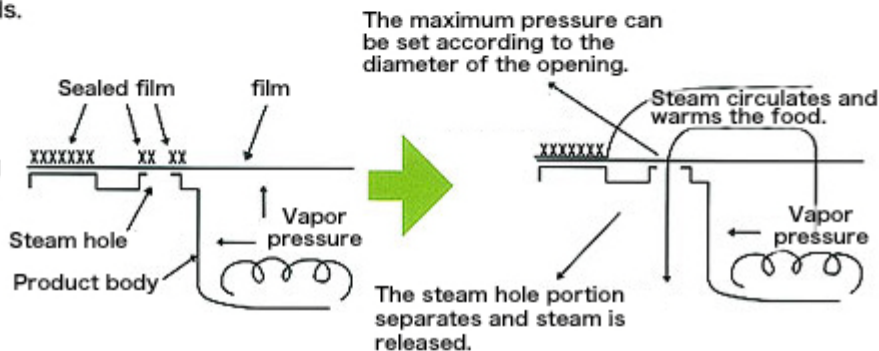
- Company name: Tachibana Packaging Co., Ltd.
- President: Kunio Okano
- Headquarters: Oda-gun, Okayama Prefecture

- Capital: 99 million yen
- Business activities: Manufacture and sale of plastic and wood products, plastic food containers, and PET resin products

The greatest advantage of Chef Pack products is their ability to steam foods. What makes this possible are the newly developed steam holes located at the two ends of the container. **Chef Pack products are initially completely sealed, but pressure from heated steam generated from the food opens the steam holes located at the ends of the product and is released in a downward direction.** The steam holes are not ruptured by the limit pressure and the container is not damaged by the internal pressure, so it is possible to **maintain a certain pressure continuously** even after the steam holes open. This makes it possible to cook and steam foods.



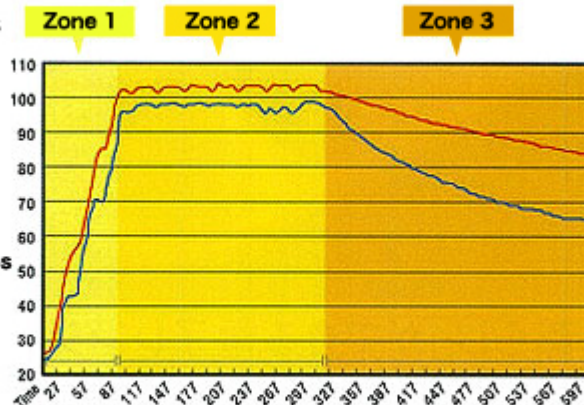
### The steaming mechanism



### Heating Properties of Chef Pack

● 100 cc of water in the container  
 Heating time: 5 minutes  
 Temperature was monitored for an additional 5 minutes for a total of 10 minutes.

— Chef Pack  
 — Open sample



\* In the case of microwave cooking, there are differences in temperature according to the content. The figures here are for reference purposes

**Zone 1**  
 The temperature increases from heated steam even if the microwaves stop because of the capacity of the microwave oven.

**Zone 2**  
 The water temperature in the open product reaches 95°C, but that of Chef Pack reaches more than 102°C.

**Zone 3**  
 Heat retention properties are exhibited after heating is completed.

## 【Chef Pack Food Containers Designed Specifically for Microwave Ovens to Steam Foods】

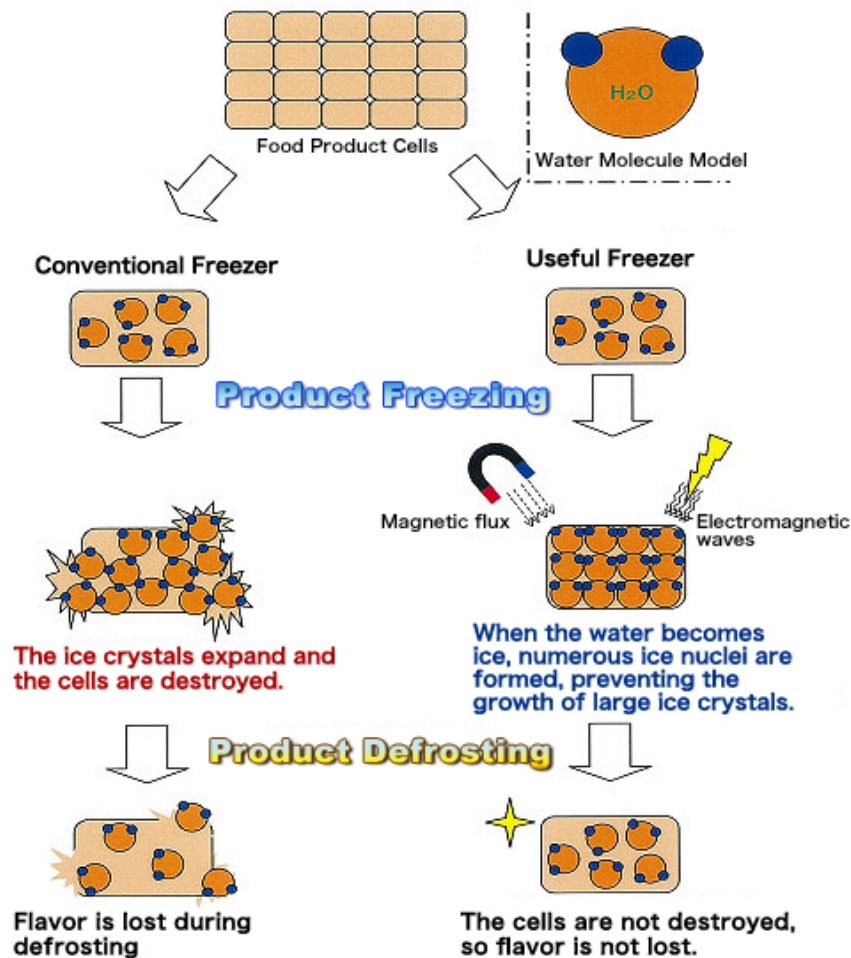
### Features of Chef Pack

- Foods can be cooked without removing the top seal film.
- Cooking times are approximately 20% shorter compared to open containers, minimizing damage to products.
- Foods are heated by both steam and the microwaves, eliminating uneven heating.

- Presents contamination by foreign substances.
- Patented in Japan and China.

## Overview of Ryoho Freeze Systems

- Company name: Ryoho Freeze Systems Co., Ltd.
- President: Kazunari Ninomiya
- Headquarters: Nara City, Nara Prefecture
- Capital: 28 million yen
- Business activities: Design, manufacture, and sale of industrial freezers and foodstuff plant equipment



### Useful Freezer

- In the case of conventional freezing, the ice particles become large and the food quality deteriorates after defrosting. The formation of numerous ice nuclei can be used to prevent the growth of large ice crystals and avoid the formation of large ice particles.

- Ryoho Freeze Systems is continuing research and development in cooperation with Professor Tadahiko Mizuno of the Laboratory of Nuclear and Environmental Materials at the Graduate School of Engineering of Hokkaido University.

**【Presumptive Model of Useful Freezer Freezing】**

## **Features of Proton Freezing**

- Useful Freezer products are distinctive freezers that combine magnetic flux density, electromagnetic waves, and cold air to form numerous ice nuclei and prevent the growth of large ice crystals.
- The result is no destruction of food product cells and minimal dripping.
- Food quality can be maintained by preventing the destruction of food product cells and minimizing dripping.

###