

# CRYO

Gulf Cryo is a leading manufacturer of food-grade, industrial, medical and speciality gases in the Middle East. Covering all of the GCC, Jordan, Syria, Pakistan and Iraq, our highly skilled engineers work with the food and beverage industry developing technology to advance manufacturing processes through innovative gas applications.



## Cryogenic Food Freezing and Chilling



- Liquid Nitrogen Dosing
- Modified Atmosphere Packaging (MAP)
- **Cryogenic food freezing and chilling**
- Cold transportation
- Cleaning with dry ice blasting
- Concrete cooling

With six core gas applications providing a vast range of manufacturing and process improvements to industries such as oil and gas, aerospace, construction, food and beverage and pharmaceutical. We provide analysis, design, trials, and installation, supporting you from application inception to completion.

Our techniques can improve quality, rate of production, time, cost efficiency and distribution capabilities.



progressive by nature

## Quick-freeze process improves quality and texture of food products

### Did you know?

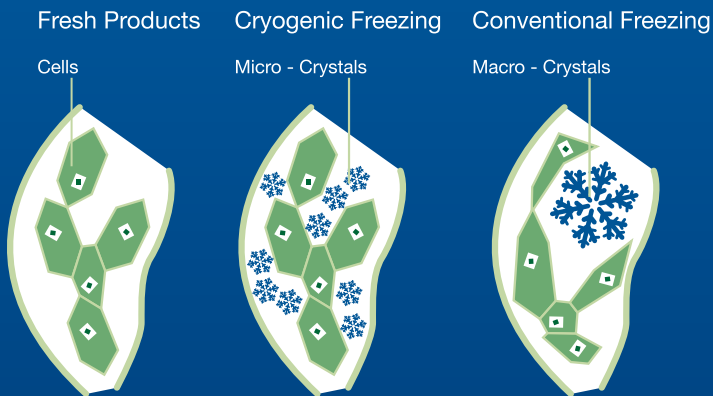
Liquid Nitrogen is a cryogenic fluid that boils at  $-196^{\circ}\text{C}$  ( $-321^{\circ}\text{F}$ ) causing rapid cooling! Conventional freezing can destroy the cells and structure of the food product due to the formation of large ice crystals!

## The Gulf Cryo solution

Rapid freezing with Liquid Nitrogen results in the formation of smaller ice crystals which ensure the moisture and quality in foods are maintained for longer. Our Liquid nitrogen systems offer a cost-effective alternative to traditional methods of food freezing and chilling, processing larger quantities faster, while providing better food quality

This process is also an environmentally friendly option as no electricity is needed for the freezing process.

| Suitable food types for freezing  | What we do:   |
|---|---|
| <ul style="list-style-type: none"> <li>Seafood</li> <li>Fruit and vegetables</li> <li>Portioned fruit and vegetable purée</li> <li>Meat including poultry</li> <li>Bakery products</li> <li>Dairy products</li> <li>Ready meals</li> <li>Highly marinated products</li> </ul> | <ul style="list-style-type: none"> <li>Product Supply through diverse supply modes</li> <li>Feasibility Studies &amp; cost/benefit analysis</li> <li>Design, engineering and installation of the application</li> <li>Equipment supply; whether freezing tunnels, batch freezers...etc</li> </ul> |



## The industry challenge

When food products are frozen using conventional methods, it has to be a gentle process so that when they are defrosted they are served 'as fresh' without the deterioration of flavour or texture.

However, this process is slow and large ice crystals can form which lead to the products cells and structure being damaged. The frozen food will lose its form and structure, the quality of the taste, colour and smell will be reduced and vitamins, nutrients and flavours are also lost.

## The benefit to you

This technique offers you a host of advantages including:

- Improved quality in terms of taste, colour and smell
- Increased rate of production
- Maximise shelf life
- Smaller weight losses due to dehydration compared to conventional mechanical freezing
- Environmentally friendly

| Conventional Freezing                  | Liquid Nitrogen fFreezing            |
|--|--------------------------------------|
| Ice Cream is hardened in 24hrs or more | Ice Cream is hardened in 1hr or less |

Talk to our applications engineers to identify the right solution for you.

## Ice-cream making with Liquid Nitrogen (LIN)

Our Nitrogen applications for the ice-cream making process are:

- Ice-cream hardening
- Crust freezing
- Individual quick freezing

Through rapid freezing we ensures the moisture and quality are maintained, producing a creamier texture ice-cream. This process takes place using our LIN tunnel freezer for continuous freezing and our LIN batch freezer depending on the quantity required.



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