

# Freezing and Chilling

## We Deliver:

- A competitive freezing or chilling cost
- Process optimisation
- A customised monitoring program



## Your Market

With globalisation and changing consumer habits, many food processors continue to be focused on innovation and on keeping their costs under tight control in order to minimise the impact of higher prices, for raw materials, fuel and consumables, on their profit margins.

Processes involving cryogenic refrigeration continue to play a vital role in food manufacturing since cryogenics can deliver outstanding results, addressing many food safety and spoilage concerns for various types of food products. Cryogenics is also well-known for improving product quality, productivity throughputs and process flexibility while delivering a competitive freezing or chilling cost.

Properly managing and optimising your cryogenic process can be a challenging task, however our **Solutions for Freezing and Chilling** can provide you with a simple way to control your costs and a new level of operational performance.

## Your Solution

Our **Solutions for Freezing and Chilling** combine the best of Air Liquide's **ALIGAL™** gases, application equipment and technical support service for the optimisation of your cryogenic process. This offer has been designed for those processors that need to achieve a competitive freezing or chilling cost for their food products.

## Your Advantages

- **Improved management of your freezing and chilling costs**

We provide you with a gas consumption benchmark and can assist you with the on-going monitoring and optimisation of your gas consumption.

- **Regular feedback and support service**

Start-up assistance and customised operational training with productivity, process improvement, safety and cleaning guidelines is available from our technical experts. Air Liquide can support you further with reviews of your operation to ensure that your product consumption goals are being achieved

# Our Offer

Our Solutions for Freezing and Chilling consist of:

- **ALIGAL™ 1 (Liquid Nitrogen) or ALIGAL™ 2 (Liquid Carbon Dioxide) supply:**

ALIGAL is an Air Liquide brand name for those gases that are compliant with local food grade specifications, regulations, and industry standards.

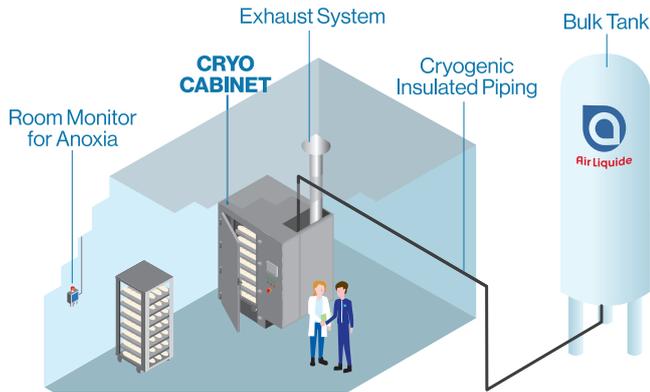
- **Process Expertise and Service:**

Air Liquide will provide you with the full support of our food application and technical experts from the design to the installation and start-up of the solution to the on-going optimisation of your process.

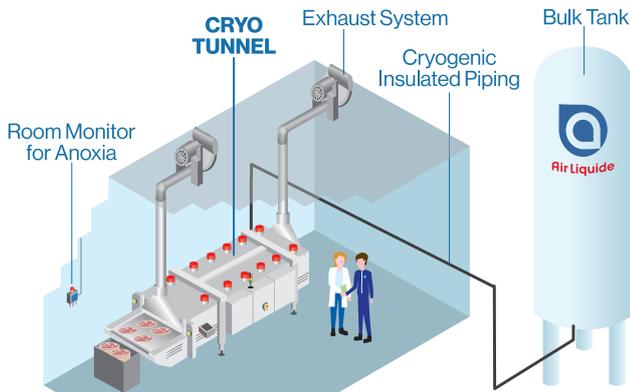
- **State-of-the-Art Application Equipment:**

Air Liquide offers a wide variety of cryogenic application equipment to meet your freezing and chilling needs:

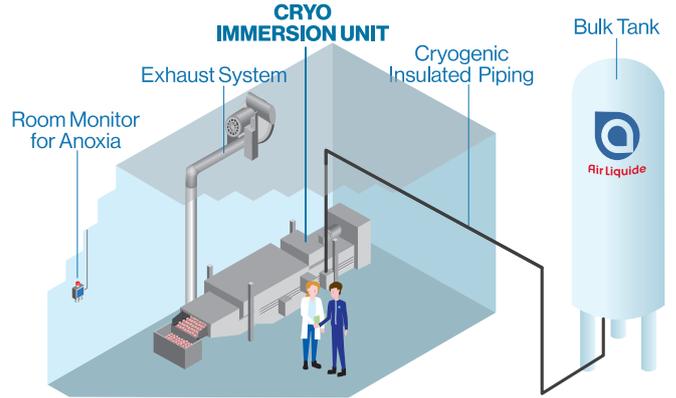
- The **CRYO CABINET** for any batch process that needs the versatility to efficiently chill, freeze or crust-freeze nearly any type of food product.



- The **CRYO TUNNEL** range for any in-line process that needs the versatility to chill, freeze or crust-freeze/harden different types of food products while ensuring exceptional product quality.



- The **CRYO IMMERSION UNIT** range for any Individual Quick Freeze (IQF) process that needs the versatility to individually quick freeze or crust-freeze small, diced, sticky, liquid or semi-liquid food products.



Our range of application equipment is ideal for those processors that need increased productivity, excellent cryogen efficiency, improved sanitary design, ease of operation and maintenance with a minimal capital investment and installation cost.

## Case Study

### IQF Cooked, Sliced Poultry Products

Optimise the IQF process to achieve a CO<sub>2</sub> consumption objective of 1 kg/kg for a new CRYO TUNNEL- ZR2 installation for cooked, sliced poultry products

Performance Service	Issues	Optimisation
Recipe Set-up	Operators were manually changing the freezer parameters without any documentation	Setting up recipes for each product for operation consistency with documentation
Training	Minimal Safety and Operator Training without any documentation	Customised Safety and Operational Training of operators and maintenance personnel with documentation
Process Audit	No benchmarking or documentation of operating parameters	Provided recommendations and documentation based on the process audit regarding deviations from the original parameters
Gas Installation and Application Audit	Customer acceptance of the equipment and the installation was not documented	Documented installation set-up and provided recommendations for optimisation of the equipment and the exhaust system set-up
Follow-up Review	No regular reviews on the performance of the process equipment	Regular reviews of the consumption objective, audits, operational issues, recipe set-ups, training programs, documentation and determining next action items

### Contact us

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 66,000 employees and serves more than 3.6 million customers and patients.