

Super-cooling Technology for Domestic Refrigerator/Freezer

A Chinese multinational company seeks partners to develop novel cooling technologies or modules to enable super-cooling of food to temperatures of -1 to -5C.

Key Success Criteria:

Successful responses will:


- Deliver super-cooling of food such as meat and fish to temperatures of between -1 to -5C
- Deliver even cooling of products with typical weight of 50-500g and thicknesses of 1-5cm
- Reduce the water loss of the product after thawing by at least 20% compared to standard fast freezing technologies.
- Be made from materials considered food grade and able to be in contact with foodstuffs

Background:

In conventional freezing of foods, the rupturing of cells caused by expansion of ice crystals can result in water loss when the product is thawed. Storage of products within a freezer can also result in freezer burn. Super-cooling is the cooling of a liquid below its freezing point without it becoming solid. Super-cooling may provide benefits in domestic refrigeration systems to provide longer term food preservation without loss of quality when the food is thawed. Our multinational partner company invites proposals from companies (large or small and medium enterprises), inventors or researchers with concept or prototype solutions that allow super-cooling within a refrigerator.

Possible Approaches

Possible approaches could be based on:

- Precision controlled cooling technologies
 - Novel cooling solutions, systems or technologies
 - Novel modules for super-cooling with new evaporator or condenser technology
 - Usage of new materials
 - Adaptation of super-cooling systems from the medical technology sector
 - Super-cooling or freezing modelling
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Approaches Not of Interest:

The following technologies or approaches are not of interest:

- Approaches that cannot be accommodated within the standard dimensions of refrigerators
- Approaches that adversely impact food preservation quality such as taste, colour or spoilage

Preferred Collaboration Type:

Our multinational partner company prefers to work with partners that have existing technologies or approaches that can be applied to this specific application. Collaboration can involve technology licensing, product sourcing, proof of concept leading to joint development agreements and assistance with scale-up to manufacturing. Preference will be given to technologies or approaches that currently have working prototypes that can undergo feasibility, validation or proof of concept over a 3-6 month period. Financial support for the proof of concept phase will be negotiated based on specific performance targets agreed between both parties. For selected collaborators our partner company may provide access to samples, test equipment and testing facilities. Technologies will need to satisfy manufacturability, material cost and ease of use assessments to progress from the concept stage.

How to Respond:

We are looking for concise non-confidential proposals, statements of expertise or other enquiries if your expertise fits our needs. Please note that only nonconfidential information can be accepted. The proposal should also provide us with appropriate contact information in order to help us keep update with solution providers. For all responses please indicate your preferred collaboration approach (eg supply, joint development, research) and capabilities (eg research, concepts, prototype, small scale manufacture, large scale manufacture).

If you are interested, please respond to:

Ms Katarína Nagyová
Technology Transfer Manager,
Head of TT Department
LC Innoconsult International

innovacio@lcinnconsult.com
nagyova.katarina@lcinnconsult.com

