Client KFU

We are searching for innovative, disruptive and IP-supported technologies, materials, or products to significantly reduce the energy consumption of refrigeration units, e.g. freezers and chillers maintaining temperatures down to -18ºC.

Background

Our client supplies equipment for the storing and display of chilled and frozen foods in supermarkets, shops, retail outlets, etc. Their customers are keen to simultaneously reduce costs and increase sales of chilled / frozen foods, and as a result of increasing energy costs are demanding more energy efficient and cost effective Point of Sale (POS) storage / display units.

Requirements

The aim of the client is to radically reduce the energy consumption of refrigeration units, by applying advanced materials technology to make them as efficient as possible.

Physical / chemical / electronic technologies are all of potential interest, but by applying a single technology or synergistic effect, should enable a step-change in performance. Client is interested in both close-to-market solutions and long term technologies requiring investment, to enable design of next-generation products with fundamentally reduced energy requirements.

The client is not interested in reviewing new refrigeration processes, but ways to make the cabinet / enclosure more effective and efficient. There are millions of these units used worldwide and so technologies should be applicable for a wide range of environments with varying external temperature, humidity, etc and be scaleable for varying sizes of unit. Whilst the primary interest is for static units used for POS, there is also a potential application for portable / mobile units used for distribution.

Benefits to be gained from technology

- Reduce cost of use, by reducing energy consumption and improving thermal management
- Increase capacity of unit by reducing thickness of insulation to enable more internal storage
- Enhance customer experience – make unit more informative, products easier to view and quicker to access

Some relevant technology areas are listed below, but this is not exhaustive:-

Permanent Coatings / Films / Surface Finishes – for glass, metal and plastic

- Prevent condensation / fogging
- Prevent build-up of frost / ice
- Antibacterial / hygiene coatings to reduce cleaning
- Increase reflectivity of glass to reduce UV / heat

=> For example - Hydrophobic, Sacrificial, Nano-coatings, Ice-phobic

Insulation (cabinet walls, glass lids / doors, cooling processor) to reduce heat transfer

- Passive / Active insulating materials and similar advanced techniques
- Improved seals to prevent loss of cold air and ingress of warm air

=> For example - Multi-layer, Vacuum Insulated Panels, Aerogels, Hollow particles, Improved foams

Electronic / Other

- Lighting - Low or no energy lighting, e.g. LED, fibre-optic, etc
- Smart advertising / displays
- Switch transparency of glass for viewing / protection
- Control humidity caused by opening / closing
- Air circulation
- Active de-icing of surfaces, coils, etc

We are willing to explore any reasonable commercial arrangements, including licensing in of proprietary or innovative products, systems or technologies, strategic alliances or partnering arrangements and outright purchase. Please send preliminary information on any proposed opportunity to – Vicki O'Brien, Projects Manager. Thank you.

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