

PRESS RELEASE

Cannon Afros LIFE VICORPAN Project co-funded by EU for CO2 emissions reduction and recyclability of fridges and freezers

The project aims to demonstrate how to enhance the energy efficiency and recyclability of **V**acuum improved **I**nsulation by **CORe** shaped **PAN**els of commercial and domestic refrigerators

Caronno Pertusella (Varese), Italy, October 19, 2022

Cannon Afros, a company of the Cannon Group, is the world's leading supplier of dosing systems, mixing equipment, processing technologies and expertise for the thermal insulation of domestic and commercial refrigerators using polyurethane (PU) resin-based formulations.

The LIFE VICORPAN Project, for the development of energy efficient and recyclable vacuum insulation panels (VIP), is spearheaded by Cannon Afros with co-funding from the European Union's LIFE program (LIFE20 CCM/IT001644). It is targeted at developing and delivering panels with significantly enhanced performance and sustainability vs. existing VIP panels for refrigerators, freezers, and cooling cabinets.

Cannon Afros is in partnership with Epta, a multinational industrial Group specialized in commercial refrigeration, who will integrate the new VIP panels into its products, and BASF Polyurethanes who brings knowledgeable insulation chemistry and open cell foam-based VIP solutions.

"Thermal performance of typical VIPs with a micro glass-fiber board core encapsulated in an aluminum foil adhered to sides and top of refrigerators have a much lower thermal conductivity than conventional foam insulation. However, glass-fiber VIPs cause significant challenges during the recycling process of refrigeration devices due to the liberation of the filler material. They can release as well, during production, very thin particles that can be considered potential pollutants of the working environment. Additionally, their aluminum borders may compromise a considerable amount of the insulation capacity provided by the vacuum, especially at the corners," said Maurizio Corti, Corporate Technology and R&D Coordinator at Cannon. "The VICORPAN solution is dedicated to overcoming these issues with a contoured open-cell polyurethane core panel. The possibility to shape the cores can reduce the border effect and bring more flexibility to the insertion of the panels into the shell of the cooling cabinet."

The VICORPAN design is expected to provide up to 17% lower heat transmission in commercial refrigerators and freezers based on a conventional PU foam insulation, helping manufacturers to meet higher categories of the rescaled energy efficiency labeling for refrigerators in Europe.

The use of an open cells PU-based core would eliminate pollution and safety concerns during the production, assembling and at the end-of-life recycling of the refrigerators components and contribute to a much better recyclability of the refrigeration devices. The Project will also test cores reinforced with bio-sourced porous fillers such as rice husks, cereal straw, and sugarcane bagasse to also measure their carbon footprint reduction potential.

Moreover, they will also reduce the weight, and therefore their total carbon footprint, in relation to current VIP panels from 300 to about 50-60 g/cm³ and enable a better combination of VIPs and polyurethane foam to guarantee the structure of insulated cabinets.

In addition, the Project will trial the design and insertion of VIP panels inserted between the condenser and the evaporator at the back of refrigerators, an area that is often overlooked and yet most critical for thermal transmission.

The LIFE VICORPAN Project is currently at a pre-industrial stage, with functional prototypes under evaluation.

To learn more, visit the [Cannon Group at K2022](#), Düsseldorf, Germany (Oct. 19-26), in Hall 13 Booth B87.

About Cannon Afros

Cannon Afros, a company of the Cannon Group founded in the early 1960s, is the world's leading supplier of dosing systems, mixing equipment and processing technologies for polyurethanes and multi-component resins. Today Cannon Afros offers an extensive range of processing technologies for molding, pouring, injection, spraying, and manufacturing abilities dedicated to a comprehensive range of resins such as polyurethanes, silicones, elastomers, epoxy resins, phenolic foams, and bi-component adhesives. Cannon Afros design, manufactures and sells a vast range of equipment from single mixing heads and stand-alone units to complex turnkey and customizable production plants to serve the following main industrial applications: automotive interiors and exteriors, appliances and refrigerator insulation, rigid insulation for the cold chain industry and refrigerated transportation, building and construction insulation, sanitary ware, piping insulation for oil heating and district heating, technical components and medical equipment, flexible padding and seats for furniture and automotive industries, sealing and gluing for lighting and electrical enclosures, and encapsulation and potting for electrical and electronic components.

About Cannon Group

Founded in 1962, Cannon Group comprises 30 companies, with a global presence in more than 40 countries and is recognized as a market leader in technologies, processing and molds for polyurethanes and urethane elastomers for the plastics and composites industries. The Group designs and manufactures high- and low-pressure dosing machines and mixing equipment, for continuous slab and discontinuous molded polyurethane foams. Dedication to continuous innovation now positions Cannon Group as a driving force offering the design, manufacture, servicing, and maintenance of equipment also in other key technology areas including: Energy - industrial boilers for standard and special applications, comprising steam boilers, hot water heaters, heat recovery boilers, and thermal oil heaters, with in-house engineering and fabrication services; Water & Wastewater Treatment - deareators, condensate treatment and recovery, effluent treatment plants, sanitary water treatment and sewage treatment, injection water treatment, demineralization, produced water; and Automation, where Cannon Group offers process digitization and condition monitoring, connect-IT and emissions monitoring. Cannon Group is committed to reducing the ecological footprint of all the Group's technologies and industrial processes offered to the market through energy efficiency, resource consumption reduction and emissions reduction. Cannon Group delivered net sales of €230 million in 2021. To learn more, visit www.cannon.com

Epta. Advanced solutions for your store.

EPTA – A multinational Group specialising in commercial refrigeration, which operates globally through its brands **Costan** (1946), **Bonnet Névé** (1930), **Eurocryor** (1991), **Misa** (1969), **Iarp** (1983) and **Kysor Warren** (1882). In both domestic and international markets, Epta is a partner capable of producing and marketing complete refrigeration systems, thanks to the individual product ranges it has incorporated. These include traditional, vertical, and semi-vertical positive fridge cabinets, negative vertical and horizontal cabinets and built-in units (plug-ins) for Retail, Food & Beverage and Ho.Re.Ca., along with mid- and high-power units and cold-rooms and a complete portfolio of

pre and after sales services. With headquarters in Milan, it employs more than 6,000 people and boasts a number of production sites in Italy and abroad. It also has a far-reaching technical and sales force worldwide, guaranteed by over 40 technical and commercial sites.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 111,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €78.6 billion in 2021. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at www.basf.com.

About BASF's Performance Materials division

BASF's Performance Materials division encompasses the entire materials' know-how of BASF regarding innovative, customized plastics under one roof. Globally active in four major industry sectors – transportation, construction, industrial applications and consumer goods – the division has a strong portfolio of products and services combined with deep understanding of application-oriented system solutions. Key drivers of profitability and growth are our close collaboration with customers and a clear focus on solutions. Strong capabilities in R&D provide the basis to develop innovative products and applications. In 2021, the Performance Materials division achieved global sales of €7.29 bn. More information: www.plastics.basf.com.

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The Cannon Afros LIFE VICORPAN project aims to demonstrate how to enhance the energy efficiency and recyclability of Vacuum improved Insulation by **CORe** shaped **PANe**ls of commercial and domestic refrigerators. Photo: Cannon Group.