



CRETA FARM CUTS ENERGY BILL IN HALF WITH SECONDARY COOLING AND TEMPER -15

After a devastating fire Creta Farm decided to rebuild and install a cutting edge energy efficient solution for the production plant in Crete. The prestigious assignment to design the new cold storage went to ecoRef in Athens. They designed an indirect cooling system with R407F and Temper -15 as secondary fluid. The results have exceeded the expectations with significantly reduced energy costs.

Rethymno Production plant

To comply with the new F-gas regulations and to reduce the energy consumption, Creta Farm and ecoRef installs a modern secondary refrigeration system with a high reliability.

The refrigeration installation

The old R22 compressors was in good condition and could be saved and used in the new installation. The new system was designed with R407F as the primary refrigerant and Temper -15 as heat transfer fluid. A buffer tank of 8m³ stores Temper -15 at -6 °C and service the refrigerated areas through a set of electronically controlled pumps. The freezer circuit remained a DX system with R407F.

Energy Efficient Defrosting with Temper -40

Temper -40 was also used for defrosting the DX-aircoolers in freeze storage. The system is designed to gain heat through a heat exchanger from the refrigerant's hot side (discharge line going to the evaporating condenser from the compressor). This system significantly reduced the energy consumptions and the CO₂ emissions compared to electrical defrost systems.

Installation Facts:

Primary refrigerant:
R407F, (GWP 1824, ODP 0)

Secondary Refrigerant:
Temper -15 (15 000L)

Temperatures:
HTF -6 °C, evap. temp -10 °C

Cold room temp. and kW:
@ 0-2 °C, 330 kW

Plastic Pipes:
AquaTherm

Brine defrost:
Temper -40 defrosting the air-coolers (-20 °C)

Advantages:

Significantly reduced energy consumption >50%.

Smaller & cheaper components

low pressure system with increased reliability

Increased food quality due to more even temperature

Compliance to F-gas regulations

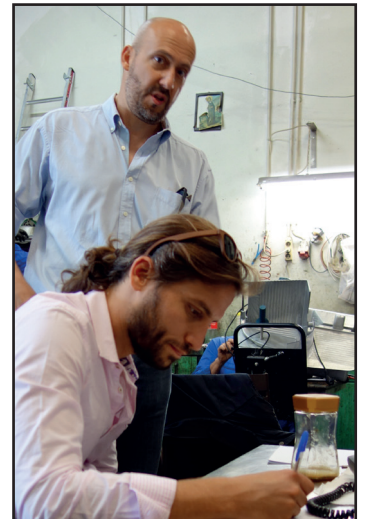
Defrosting of the DX air coolers with Temper -40 that uses free energy from the warm side.



The journey of Creta Farms began in 1970 in Crete -the land of the olive tree. In whose fruit lies the Greek treasure -the “liquid gold” as Homer called it. It was in this favored land that Stilianos Domazakis, the present owners’ father, raised his animals and later founded the first organized pork production facility in Crete and thus set the foundations for the extensive business operations of Creta Farms today. The two sons of the founder, Stylianos Domazakis, Emmanuel and Konstantinos, are very passionate for innovation and products made from pure ingredients, thus in 1987 they open the deli meat department of the firm and in 1990 they expanded the facilities of Rethymno (Crete) taking over the management and reforming the firm as “Creta Farm S.A.”.

Ecoref Design

ecoRef Consulting Engineers are based in the Historical Center of Athens. With a combined experience of more than 45 years and more than 750 projects both in Greece and abroad. They are focused in innovation, energy efficiency and are Members of Greek Association of Cold Storage, ASHRAE and Technical Chamber of Greece.



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Creta Farm Facts

Greece most important manufacturer of deli meat.

Pioneers in adding unsaturated vegetable fat to the products.

Exporting their innovative production methods to: USA, Spain and Cyprus

Certified according to; ISO 9001:2008, ISO 14001:2004

Temper Facts

Since 1996 the Swedish company Temper Technology manufactures the green and energy efficient Heat Transfer Fluid -Temper.

Temper is mainly used in larger food industry applications and logistic centers.

To ensure the high quality Temper is always delivered Ready-To-Use and can be used down to -55 °C.



Heat Transfer Fluid:	Temper -15
Freezing point (°C):	-15
Operational temp:	-6
Density kg/m ³ :	1114*
Spec. Heat (kJ/kg. K):	3,446*
	*@20 °C

ecoRef Facts

Started in 1973 and is one of the most experienced engineering offices in Greece.

Members of Greek Association of Cold Storage, ASHRAE and Technical Chamber of Greece.

Has many international customers.

Leading expertise in: Industrial Refrigeration, green energy and electrical installations studies.