



## CRETA FARM CUTS ENERGY BILL IN HALF WHEN USING CRANE Temper IN SECONDARY COOLING

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 CRANE 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 CRANE Temper-15 as heat transfer fluid.

A buffer tank of 8m<sup>3</sup> stores CRANE Temper-15 at -6 °C and service the refrigerated areas through a set of electronically controlled pumps. The freezer circuit remained a R407F-DX system with electronic expansion valves and Energy Efficient Defrosting.

### Defrost with CRANE Temper

Energy efficient defrosting was achieved by a heat exchanger placed before the evaporative condenser that gained heat from the refrigerant's hot side (discharge line going to the evaporating condenser from the compressor).

The refrigerant warmed up CRANE Temper-40 through the heat exchanger, which was stored in a hot buffer tank serving defrosting circuit. By this method condensing temperature and pressure were also reduced before entering the condenser, achieving a more efficient refrigeration cycle.

This system significantly reduced the energy consumptions and the CO<sub>2</sub> emissions compared to electrical defrost systems.

### Installation Facts:

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

**Secondary Refrigerant:**  
CRANE 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:**  
CRANE 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 thanks to more even temperature

Compliance to F-gas regulations

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





## Creta Farm

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.".

Creta Farm is Greece most important manufacturer of deli meat. Pioneers in adding unsaturated vegetable fat to the products. Exporting their innovative production methods to countries like USA, Spain and Cyprus.

### The designers

ecoRef-Innovating Engineering 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.

## CRANE Temper® Facts

Since 1996 the Swedish company **KRAHN Specialty Fluids** manufactures the green and energy efficient Heat Transfer Fluid - CRANE Temper.

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

To ensure the high quality CRANE Temper is always delivered Ready-To-Use and can be used down to -60 °C.

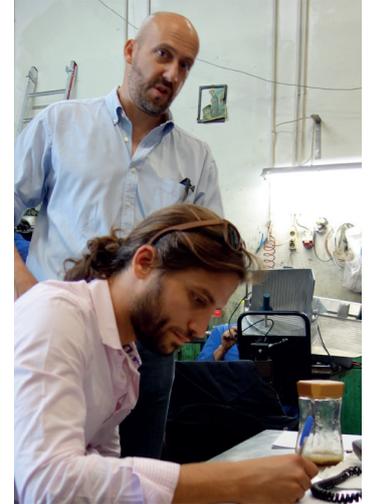
Heat Transfer Fluid:	CRANE Temper-15
Freezing point (°C):	-15
Operational temp:	-6
Density kg/m <sup>3</sup> :	1114
SpecHeat(kJ/kg):	3,446*

\*@20°C



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