

# DuPont™ ISCEON®

First dairy cooling unit retrofitted  
to non-ozone-depleting DuPont™ ISCEON® refrigerant

## CASE HISTORY

The dairy cooling unit at the Eschhof in Paußnitz is the first of its kind in Germany to use DuPont™ ISCEON®. The conversion from R-22 to the new, non-ozone-depleting refrigerant was carried out without a hitch.



**FLCH-D-2007-03**

Photo: DuPont

### **First dairy cooling unit retrofitted to non-ozone-depleting DuPont™ ISCEON® refrigerant**

Bad Homburg, March 2007. The conversion of a dairy cooling unit at the Eschhof – a farm situated in Paußnitz, Saxony – from R-22 to non-ozone depleting DuPont™ ISCEON® refrigerant has been completed without a hitch. The retrofit took place at the end of November 2006, and was the first of its kind at a German dairy. It was carried out by the German company ELAS Anlagen Service GmbH from Elsterwerda, which specialises in dairy cooling plants.

“The refrigerant specialists at DuPont provided us with expert advice in the run-up to the conversion, as well as useful tips during it. Following their recommendation, we installed an oil trap to remove the mineral oil from the unit, which was replaced with polyolester oil of the same viscosity,” explains ELAS proprietor Werner Bergmann. “Thus we were able to complete the pilot project without disrupting operations at the farm, despite the fact that we had no previous experience of ISCEON® and that the conversion represented a new venture for us. The entire retrofit was carried out during breaks in the milking process.”

ELAS Anlagen Service GmbH is specialised in milking technology as well as the construction of dairy cooling and refrigeration units. “More than 50 percent of the dairy cooling units, installed by ELAS up to 2000, are based on R-22,” comments Bergmann. “Yet the sale and use of virgin R-22 for the service and maintenance of cooling equipment will only be permitted until the end of 2009. Thereafter, either recycled R-22 may be used or the retrofit to an alternative refrigerant must be considered. As there will only be limited amount of recycled R-22 available, ELAS recommends that a conversion be carried out well ahead of the 1.1.2010 deadline. This will help avoid supply shortages, refrigeration unit outages and potential administrative penalties.”

The Dutchman Ad van Esch bought the former East-German farm-holding in Strehla and created the Eschhof. His 270 cows are milked twice a day and produce approximately 6,000 litres of milk. These are collected every other day and sold to Campina in Elsterwerda, for the production of milk, yoghurts and desserts. A principal component of the unit, which commenced operation in 1996, is a 15,000 litre-capacity milk cooling tank from MUELLER EUROPA. At the base of which is the stainless steel vaporiser, which is used to quickly and reliably cool the milk from around 35 °C to the optimal storage temperature of 4.5 °C, helping avoid germ formation. A plate heat exchanger from Alfa Laval is installed between the compressor and the condenser, which is used for heat recovery. It is used to heat water to approximately 45 °C, which, after further heating to 60 °C, is used to clean the tanks and the milking parlour. The low final compression temperature ISCEON® did not adversely affect the heat recovery process. The cooling capacity of the unit is 30 kW.

The DuPont™ ISCEON® ‘9’ series refrigerants offer numerous alternatives to R-22, and have been developed for use in deep-freeze, refrigeration and air-conditioning applications. Usually only small-scale technical changes need to be made to existing refrigeration units. Moreover, falls in energy consumption of up to 10 percent have been documented through numerous previous commercial conversions.



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