

DuPont™ ISCEON® REFRIGERANTS

CASE STUDY- SHIPPING

DuPont™ ISCEON® MO59 (R417A) CHOSEN ON BOARD M/V STENA SAGA

Unitor, the world's leading service provider to the international merchant fleet and shipbuilding industry, chose ISCEON® MO59 (R417A) to replace R22 in the a/c systems of the ship M/V Stena Saga.

The supplier of quality services and products to some 15,000 ships worldwide responded to a request from the Swedish shipping company Stena Line. As a consequence of the Swedish and European legislation aiming to phase out the ozone depleting HCFCs, they wished to replace the R22 with an environmentally acceptable alternative. Several potential replacements, such as R-507, R407C and R404A were considered.



The final choice, however, made in cooperation with Unitor's subcontractor AMK Refrigeration Gothenburg, fell on ISCEON® MO59 (R417A) due to its expected lower power consumption, substantial cost savings as the same electric motors could be kept and compatibility with both mineral and PAO oils.

The a/c system consists of two compact water chillers, each with a refrigeration capacity of 850 kW. Both circuits are equipped with screw compressors, oil separators, shell and tube evaporators, seawater cooled shell and tube condensers and economizers. The evaporation temperature is approx. +5°C and the condensing temperature +30°C. According to AMK Refrigeration who carried out the conversion, the use of ISCEON® MO59 didn't require any major technical modifications; the power consumption was reduced by 7% compared to R-22 and the discharge temperature dropped by 18 K.

Chief Engineer Pelle Broberg said that this environmentally acceptable refrigerant has met all his expectations. He was pleasantly surprised by the performance of R417A, having previously had some negative experiences with other HFC refrigerants. Stena Line's decision to use PAO oil in their refrigeration systems, where possible, is another important argument for ISCEON® MO59 as, contrary to other HFC alternatives, it doesn't require POE oils.

ISCEON® MO59 now belongs to the DuPont™ ISCEON® 9 Series refrigerant family of zero ODP CFC and HCFC replacements. Product is available in the UK from IDS Refrigeration Limited the leading supplier of energy efficient R-22 replacements and offers, besides ISCEON® MO59, ISCEON® MO79 (R422A) with a 20% lower GWP than R-404A for low temperature applications, and ISCEON® MO29 with an improved performance compared to R407C in water chillers.

This case study has been updated to reflect name changes - Originally written February 2003