

DuPont™ ISCEON® MO99™

BEER STORE RETROFITS R-22 REFRIGERATION EQUIPMENT TO ISCEON® MO99™ (R-438A)

CASE HISTORY

Background

The Beer Store

Established in 1927, The Beer Store is the primary distribution and sales channel for beer in Ontario, Canada with approximately 400 locations in the province. Customers can choose from more than 350 beer brands, in 440 retail stores across the province, from 90 brewers from around the world.

Eastern Refrigeration

Eastern Refrigeration Supply Co. Ltd., based in Markham, Ontario, was established in 1963, and is still owned and operated by founder George and his sons David and Doug Merkel. Eastern is a fully stocked distributor of all the industry recognized refrigeration manufacturers.

Circa Refrigeration

Circa Refrigeration Inc. is a full service heating, air conditioning, and refrigeration contractor, providing maintenance, service and installations of HVAC/R systems to a variety of clients. Circa Refrigeration is an industry leader with respect to environmental management and safety. Their ISO 14001:2004 certification is unique in an industry where ozone depletion and global warming are significant business concerns. The company utilizes the newest technologies to promote energy management and off site monitoring.

Project Details

The Beer Store in collaboration with Circa Refrigeration Inc. and Eastern Refrigeration Supply Company chose The Beer Store retail outlet in Milton Ontario to be a test site for the retrofit "field trial" of DuPont™ ISCEON® MO99™. At this location, the cooling capacity for the warehouse storage area is provided by two Bohn Heatcraft Model BDT1000H2E rooftop condensing units. Both of the Bohn condensing units used Copeland Discus Model 3DB3A 10hp compressors lubricated with POE oil and charged with R 22 refrigerant. One of the units, Unit #1, remained unaltered to serve as a control for later performance comparison. The remaining Unit #2 served as the "field trial" unit and was retrofitted to ISCEON® MO99™. The R-22 refrigerant in Unit #2 was removed, critical elastomeric seals were replaced and the system was leak tested. Once the system was recharged with ISCEON® MO99™ and restarted the systems was monitored with data collecting equipment. No adjustment to the operation of the system was required. Both Control Unit #1 and Trial Unit #2 were monitored for performance.

Results:

The temperature and pressure data collected before and after the retrofit indicated the operating characteristics were very similar for R-22 and ISCEON® MO99™. The Table below summarizes the pressure and temperature operating comparisons for Trial Unit #2 before and after the retrofit from R-22 to ISCEON® MO99™ as well as relative to the R-22 control Unit #1. The data also indicated an energy savings of up to 6-8% for the duration of the 10 day trial.



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Operating Data Acquired BEFORE and AFTER Retrofit of Unit #2 from R-22 to ISCEON® MO99™. Unit #1 is R-22 Control.

Operating Data	Unit 1 Control	Unit 2 Trial Unit		Change
	R-22	Before Retrofit R-22	After Retrofit ISCEON® MO99™	
Suction Pressure	46-52 psi	47-53 psi	48-54 psi	same
Discharge Pressure	225-265 psi	235-265 psi	240-270 psi	same
Suction Temperature	44-48°F	38-42°F	38-43°F	same
Discharge Temperature	180-215°F	180-200°F	150-170°F	LOWER

Conclusions

“The conversion to ISCEON® MO99™ refrigerant was easy to perform. The equipment has been run smoothly with no problems ever since the retrofit was performed. It was cost effective; we did the retrofit without any system adjustments and as a preventative measure, only critical elastomeric seals were replaced. ” stated Paul Buchanan of Circa Refrigeration. “I would definitely recommend ISCEON® MO99™ knowing how quick and easy it is to use. It was a quick switch. I anticipate using ISCEON® for a number of retrofits at other facilities we maintain” said Ryan Bince of Circa Refrigeration. Doug Merkel of Eastern Refrigeration was also pleased with results commenting “The Beer Store is an excellent retrofit to share with mechanical contractors who may be reluctant to transition from R-22 to the new ISCEON® refrigerants.” DuPont™ ISCEON® refrigerants have proven successful in countless retrofits around the world, and are now available from DuPont’s wholesaler network across Canada.



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