

# DuPont™ ISCEON® MO29

## CASE STUDY: PATHMARK

Pathmark chooses DuPont™ ISCEON® MO29 for their store remodels.



DuPont ISCEON® MO29 is the closest match to R-22 capacity and efficiency in most systems—with significantly lower discharge temperature vs. R-22. This is likely to prolong the life of the compressor.

ISCEON® MO29 provides up to 8% improved cooling capacity and up to 14% improved efficiency vs. R-22 at low-temperature conditions as a result of taking off demand cooling. ISCEON® MO29 provides slightly lower cooling capacity (about 5%) and comparable efficiency vs. R-22 at medium-temperature conditions with 10°F (6°C) subcooling.

### Background

Conn Leahy, Manager, Mechanical Systems, has been with Pathmark Stores, Inc. for 15 years and oversees everything mechanical, including systems and design installation, for 142 Pathmark stores. Leahy was first introduced to DuPont™ ISCEON® MO29 (R-422D) at the 2006 FMI Energy and Technical Service Conference, where supermarkets presented their positive experience with retrofits from R-22 to alternative refrigerants. The simplicity of the conversion, as described by Ken Welter of Stop & Shop, is what appealed most to Pathmark. "That's what led us to specify ISCEON® MO29 in Pathmark's Massapequa, New York, store as part of a store remodel," says Leahy.

ISCEON® MO29 (R-422D) is an easy-to-use, non-ozone-depleting HFC refrigerant for replacing R-22 in low- and medium-temperature direct expansion (DX) refrigeration applications, including commercial supermarket systems.

### Situation

In early March 2007, the Pathmark engineering team decided to take advantage of a scheduled store renovation to retrofit the Massapequa store's four display racks: two low-temperature (–20°F evaporator temp/–10°F to 0°F on case temp) and two medium-temperature (+20°F evaporator temp/+33°F to +40°F on case temp) with ISCEON® MO29 (R-422D). The refrigerant charge size was estimated at 800 lb. per rack.

### Retrofit

Pathmark contracted AAA Refrigeration Services, Bronx, New York, to do the remodel work at the Massapequa store. Leahy scheduled the case change-out first since their previous experience with R-404A conversions included "hectic" delays due to the extensive time it took to change out the expansion valves and oil. Leahy states, "After our positive experience with ISCEON® MO29, we will not [schedule case change-outs first] going forward."

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Bob Isola is an HVAC contractor with AAA Refrigeration Services and has more than 20 years of supermarket refrigeration experience. Bob led the retrofit project at the Pathmark supermarket, replacing R-22 with DuPont™ ISCEON® MO29 (R-422D) and learning firsthand the ease with which ISCEON® MO29 performs under retrofit conditions.

Isola explains, “This was our first retrofit for R-422D... I was very pleased with how this retrofit went, both from a time and ease-of-use standpoint. Changing gaskets and seals went smoother than expected.” Isola’s previous experience dates back to the early 1990s where he conducted conversions from chlorofluorocarbons (CFCs) R-12 and R-502 to DuPont™ Suva® MP39 and HP80.

Isola continues, “I was a little surprised with how well the retrofit went. Expansion valves have not been an issue and we are really happy with how things are going. I was expecting there to be more issues with leaks, yet there were none. The oil did not need to be changed and this was a timesaver. The TXV situation was a big plus. We did make some seal changes; in particular, the receiver level float and Schraeder cores were replaced.”

Isola did not have to change the oil because ISCEON® MO29 is compatible with alkylbenzene (AB), the lubricant that was originally in the system. This saved a considerable amount of time and money typically required to remove the oil, flush the system and replace it with new oil. In addition to being compatible with AB, ISCEON® MO29 is also compatible with other traditional and new lubricants, including mineral oil (MO) and polyol ester (POE).

### Benefits gained

Pathmark’s Leahy praises the easy conversion from R-22 to ISCEON® MO29, “No oil change is a significant factor; that you don’t have to change the valves is a major plus. It’s so easy—a no-brainer.” He says he was most surprised by how smoothly it went, stating, “It was so easy, it was a non-event.” Leahy states that overall, “The modernization and operations at the Massapequa store was seamless, converting to ISCEON® MO29.”

Isola agrees, saying, “This was as close to a drop-in as you can get. This was probably the biggest benefit.” Isola adds, “We’ve been able to speak to some of our customers and explain that the retrofit process is not as scary as they might think it is. In fact, it’s much simpler than they might expect. We can recommend ISCEON® MO29 based on our knowledge and experience.”

Isola says, “Another plus was DuPont’s willingness to come up and work with us on the change.” He continues, “That your folks wanted to be involved from the beginning was great!”

### Conclusion

Isola says, “I think the retrofit went very well. The longest part was getting the old gas out; the new gas went in okay and everything went back on line with no problems. We have guys in the store every day continuing the remodel project. They are keeping an eye on things and no problems so far.”

Isola further states, “A real plus was that we were able to make the change without spending a lot of time dealing with issues afterward. I expected we could have leaks with gaskets, but we haven’t found that to be a problem. I had a concern with the oil situation, but that seems fine, and we haven’t had to take out or add oil.”

Pathmark’s Leahy summarizes by saying, “We don’t have to plan to perform the conversion ahead of the construction start; the conversion can be performed concurrent with the construction. Cases can be changed to coincide with other work on the systems like condenser changes, saving the store from additional down time on the compressor racks. We have scheduled five additional retrofits at Pathmark stores over the next two months.” Leahy’s advice to others considering ISCEON® MO29 for their store conversions: “Try it, you’ll like it—it couldn’t be simpler!”

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