



“The results of our retrofit and the switch to the Solstice® N40 refrigerant have been tremendous. Our utility bills have dropped 30 to 35 percent.”

— Mike Floersch
Owner, Ray's Apple Market

Ray's Apple Market Enjoyed Significant Energy Efficiency Gains With A Retrofit Including Honeywell Solstice® N40 (R-448A) Refrigerant

The improvements helped the store be more competitive while reducing environmental impact

THE OPPORTUNITY

The original equipment in the 53-year-old store in Seneca, Kansas, was inefficient and used outdated R-22 refrigerant.

The owners saw an opportunity for a store remodel that would both cut energy costs and improve customer experiences.

THE SOLUTION

Working with contractor Price Thermonics and Zero Zone, Ray's Apple Market upgraded the store's refrigeration system, switched to Honeywell Solstice® N40 (R-448A) refrigerant, installed new display cases, and upgraded the store to LED lighting.

Even Small Stores Need Big Solutions

Grocery stores operate on tight margins, and it's especially difficult for small, independent stores to compete with the major chains.

Any money saved in energy costs goes directly to the bottom line and helps stores be more competitive. For Ray's Apple Market, the ideal situation would be an improvement in the store's appearance for their customers while also gaining significant energy savings behind the scenes.

“Our fresh food and clean look set us apart,” said Aaron Floersch, who operates the six-store chain with his father, Mike. “The retrofit to the Zero Zone cases improved our food displays, and the more efficient system with the R-448A played a big role in our energy savings.”





Honeywell Solstice N40 Refrigerant (R-448A)

Solstice N40 is an HFO blend ideal for supermarket refrigeration retrofits and new systems.

- Performance equivalent to R-22
- Lower GWP than R-22 for long-term regulatory compliance
- GWP 68% lower than R-404A
- 5-16% lower energy consumption in medium-temperature refrigeration
- Nonflammable (ASHRAE A1) for safer, seamless integration
- Non-ozone-depleting
- No thermal expansion valve changes, eliminating most retrofit costs



The new refrigeration systems serves the entire store with just 8 compressors on two split-section racks.

Savings on Display

Ray's Apple Market has been owned and operated by the Floersch family for more than 50 years, and the Seneca, Kansas, location is the original store. "We're established," said Mike Floersch, "but we can't rest on that. We have to keep moving forward. To run older equipment is expensive, so we decided to look for opportunities to improve the entire store."

To achieve the goal of improving the customer experience while dramatically cutting energy costs, the Floersch family made the switch to LED lighting throughout the store. "The other part of the retrofit was to improve our displays and upgrade the refrigeration system," said Aaron Floersch, "and that's where Price Thermonics and Zero Zone come in."

"Before the retrofit, they were running 23 separate compressors," said contractor David Price of Price Thermonics. "They had R-22 in some and R-404A in others. They needed a more efficient solution, and they also wanted a lower-global-warming-potential (GWP) choice, and that led to the R-448A, or Solstice N40. And then the other part of the equation is the Zero Zone display cases."

Efficient Design

The teamwork between Price and Zero Zone is easily seen both in the store area and behind the scenes. "Zero Zone reach-in door cases can save as much as 84% on energy usage," said Carl Petersen, marketing manager for Zero Zone.

"We previously had all open cases," notes Mike Floersch, "and we were a little nervous that the closed cases might diminish our displays. When we saw how well the food shows in the Zero Zone closed-door units, and that our customers loved them, we saw it as a real win."

What the family also sees is efficient operation. "Working with Zero Zone, we streamlined the system design to two parallel racks with a total of eight compressors for

the entire store,” said Price. “An added bonus is that the R-448A lets us use smaller piping, which saved the store a lot of money in material costs. Honeywell provided us with a pipe line sizing chart that helped make the installation a breeze.”

Keeping The Doors Open

The upgrade to Zero Zone closed-door displays and the refrigeration system didn't require Ray's Apple Market to close. “It was important to us to remain open so that we could serve our customers,” said Aaron Floersch. “David Price and Zero Zone made that happen.”

“Our customers seemed to enjoy seeing the changes take place,” adds Mike Floersch, “and obviously we enjoy the results we've seen.”

Ray's Apple Market has experienced 30 to 35 percent savings on their energy costs since the retrofit. “Part of that, of course, is from the LED lighting and closed-door cases,” says Price, “but the streamlined compressor system and switch to R-448A played a major role.”

“We think the refrigerant is driving as much as 15% of our savings,” said Aaron Floersch, “and we're now rolling it out to another one of our stores. Eventually, because of the energy savings and the environmental benefits, we expect to switch all of our stores over to R-448A.”

An Efficient Future

“They're not alone,” notes Steve Holmes of *Charles D. Jones Company – North Kansas City*, the distributor for the retrofit. “More companies are seeing the benefits of replacing old R-22 and R-404A systems, and not just because of the environmental benefits. They see the additional benefits of energy savings and reduced material costs.”

“We've made a proactive decision to use R-448A in many of our cases,” adds Petersen. “From an energy efficiency and GWP standpoint, R-448A has been our primary choice for those wanting a better alternative to R-404A.”

“For us, it was a no-brainer to switch,” said Mike Floersch. “The lower GWP played a role in our decision, because we want what's best for both our customers and the communities we serve. Add in the tremendous energy savings we've enjoyed... like I said, it's a no-brainer.”



The Zero Zone closed-door display cases enhanced food presentation while improving energy efficiency.



The fresh food displays at Ray's Apple Market are popular with customers. The goal was to maintain the beautiful presentation while enhancing energy efficiency.

“From an energy efficiency and GWP standpoint, R-448A has been our primary choice for those wanting a better alternative to R-404A.”

— Carl Petersen
Marketing Manager,
Zero Zone

*Photography courtesy
of Zero Zone*

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