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Festival Foods Selects Solstice® N40 as First Choice for New Builds

New R-448A Refrigerant Meets Spectrum of Needs



THE CHALLENGE

Strict regulatory phase-out schedules for HFC and HCFC refrigerants are prompting supermarkets everywhere to switch to more environmentally acceptable alternatives. Festival Foods, which currently owns 28 supermarkets in Wisconsin, is experiencing significant growth as it opens new stores in key locations. With an eye on the future, Festival Foods wanted to replace the outgoing R-404A with a refrigerant of equal or better value. Criteria included a lower global warming potential (GWP), maintaining non-ozone-depletion potential (ODP), long-term regulatory compliance, near drop-in installation, easy serviceability, system affordability, safety and energy efficiency.

THE SOLUTION

Festival Foods worked closely with its refrigerant supplier, John’s Refrigeration, Inc., to evaluate two options: **new carbon dioxide (CO₂) transcritical systems and breakthrough Solstice N40 (R-448A) technology from Honeywell.** Concerns about costly CO₂ designs, learning curves and the lack of trained technicians were more than offset by Solstice N40 refrigerant and its proven ability to meet all of the required criteria. Festival Foods is so satisfied with the entire experience that it is specifying Solstice N40 as the refrigerant of choice for new store builds.

Honoring the Boomerang Principle

Festival Foods is a leading supermarket chain headquartered in De Pere, Wisconsin, with 28 locations across the state and more than 7,000 employees. Family-owned since 1946, it first expanded under the Festival Foods brand in the early 1990’s, adding new locations over the years.

In 2011, it embarked on a carefully thought out growth plan to build new stores, and acquire and renovate existing locations. In fact, Festival Foods has doubled the number of store locations since then. Since 2015, the company has built six stores starting with a new Madison location and followed by Janesville, Menasha, Somers, Green Bay North and Holmen and acquired 3 more since then. Each store build has honored the company’s ‘Boomerang Principle’ in which every decision – right down to the refrigerant – is based on the question, “*Will it bring our guests back?*”

According to Roger Schlomann, director of Construction and Facilities at Festival Foods, “For us, every decision we make adds up to what’s really important – and that’s giving our guests an enjoyable shopping experience and quality products – all while being an active and responsible partner in the community. That included finding a refrigerant that is not only reliable in keeping food fresh, but that also helps reduce our carbon footprint.”

CASE STUDY RESULTS



Medium-temperature rack designed for Solstice N40, manufactured by Zero Zone and maintained by John's Refrigeration

Setting a Precedent with Solstice N40

Historically, Festival Foods has used R-404A in its supermarkets as an alternative to R-22. Faced with the phase-out of R-404A, the company wanted to proactively select a refrigerant that could meet performance demands while offering regulatory longevity. Other key requirements included a much lower GWP, near drop-in installation, easy serviceability, system affordability, safety and energy efficiency.

According to Schlomann, "The Menasha build would set a precedent for future builds as well, so we wanted to make a careful, well-informed decision that would stand the test of time and be cost-effective. We have a very close, long-standing relationship with John's Refrigeration to build and service our refrigeration systems, and relied on them heavily to make the right recommendation."

John's Refrigeration, Inc., is also a family-owned business. It was founded in 1980, and is headquartered in Green Bay in the shadow of Lambeau Field. It has been supporting Festival Foods for more than 20 years and has 50 dedicated employees who specialize in installation and maintenance for customers across the refrigeration industry.

"The Menasha supermarket is not only a big build at 70,000 square feet, but it was also setting the tone for the future so it was especially critical to take a step back and assess all the refrigerant options," said Mitchell Melendy, store planner and project manager for John's Refrigeration.

Knowing R-404A was on the chopping block, Melendy's team eliminated other refrigerants scheduled for aggressive phase-out. At the same time, it explored longer-term options like Solstice N40 (R-448A) refrigerant from Honeywell and CO₂ transcritical systems. It also consulted with Zero Zone, its equipment partner, to ensure a complete perspective.

"Solstice N40 came out on top, meeting all the criteria," Melendy said, adding that there were too many risky outliers for CO₂ to give it serious consideration, such as lack of trained technicians and concerns about the safety of operating at high pressures. "We had a high degree of comfort recommending Solstice N40 to Festival Foods and believe it's the best, safest and lowest risk option on the market in terms of regulatory life expectancy and cost-performance."

Schlomann added that Solstice N40 is proving to be reliable and energy efficient, and is a contributing factor to the overall energy savings for new Festival Foods stores. "Another big part of the decision was that we could get from 4,000 GWP to less than 1,500 which, when combined with drop-in capability and non-flammability – is huge. Our plan is to stay with this refrigerant for the future – we are already on our 4th new build using Solstice N40."

Enjoying a Smooth Build

As with most new builds at Festival Foods, Menasha has 70,000 square feet and is full-service, offering everything from meat, deli and produce to beverages, baked goods and frozen foods.

To support this diversity of needs, John's Refrigeration worked with Zero Zone and other original equipment manufacturers to design a system that features two refrigeration racks – low- and medium-temperature – along with two KeepRite® condensers. In addition, Zero Zone provided display cases and over 300 frozen door cases for this location, while four other manufacturers provided 82 additional display cases including wide-island cases, service cases and open multi-decks. On top of this, the store has 15 walk-in coolers and freezers.

According to Steve Borer, Zero Zone Midwest Regional Sales manager, "We were honored to partner with John's and Honeywell to select the right refrigerant for Festival Foods. It was very important to feel comfortable with the technical information about how Solstice N40 would perform. Equally important was the team



A baked goods service case at Festival Foods, Menasha, Wisconsin

approach in designing and commissioning the systems to achieve the stability and efficiencies we set out to obtain, knowing this would be the refrigerant of choice for our customers.”

Historically, builds at Festival Foods take an average of five months to complete. Even with a new refrigerant, the company was able to stay on schedule at Menasha, breaking ground in February with a grand opening in June.

A “Fairly Uneventful” Startup

Equipment modifications are not uncommon with replacement refrigerants, but the fewer the better. John’s Refrigeration considers Solstice N40 to be a great choice for existing refrigeration designs with minimal changes to equipment. Zero Zone designed the systems to work with Solstice N40, so no modifications had to be made to the either the low- or medium- temperature racks on site.

“Components that are rated for use with R-448A are readily available,” said Bruce Hierlmeier, director of Regulatory Compliance & Refrigeration Technology at Zero Zone. “We were able to design equipment for use with R-448A and meet the required delivery date without issue. Start-up of the Zero Zone refrigeration systems and display cases using R-448A went smoothly.”

“Honeywell was very attentive and went above and beyond, visiting us on site and providing us with information and tools in advance.”

- Dan Long, Project Manager and Technician, John’s Refrigeration

Dan Long, a John’s Refrigeration project manager and technician, agreed. “The startup of the system with Solstice N40 was fairly uneventful and thankfully, it ran pretty much the same as R-404A. Honeywell was very attentive and went above and beyond, visiting us on site and providing us with information and tools in advance.”

Resources for Successful Conversion to R-448A

- <http://bit.ly/2qvTXBX>: HCFC to HFO Blend Retrofit Guidelines reference tool; see Appendix A, page 7
- <http://bit.ly/2rwrxbw>: Webinar on Best Practices for Successful Retrofits with Solstice N40 (R-448A)
- Digital Manifold manufacturers: Yellow Jacket®, Fieldpiece, CPS Products, Testo, North Park Innovations iManifold/iConnect and the Sporlan SMART Service Tool



Medium-temperature roof rack house



New, energy efficient frozen food cases flank the clean, wide aisles at the new Festival Foods store in Menasha, Wisconsin.

CASE STUDY RESULTS

Honeywell provided, for example, a convenient *HCFC to HFO Blend Retrofit Guidelines* reference tool for technicians, and loaned the team a digital manifold to help them quickly and accurately

adjust the thermal expansion valves (TXVs) to obtain the proper superheat settings in the cases.

"This helped immensely with installation," Long said. "We never felt like we were alone."

Teamwork and Innovation are Key

With the refrigeration system at Menasha and elsewhere running smoothly, the team agrees that teamwork, experience and innovation were key to success.

"Our recommendation is to partner with a reliable and established refrigeration company like John's Refrigeration because they understand the big picture and have the experience to know what they are doing," Schlomann said. "The teamwork and collaboration between them, us, the equipment manufacturers and Honeywell was critical."

According to Melendy, "An innovation mindset is also essential. You can't let new and innovative things scare you or you could get left behind.

Festival Foods is very proactive and as a result, their stores are set for the future. And while Solstice N40 is currently slated for all new builds, Festival Foods isn't shutting the door where it makes financial sense to retrofit existing stores with this refrigerant too."

Dan Valenta, a John's Refrigeration project and sales manager, added that refrigerant decisions will continue to be driven in part by regulatory change. "We like to plan ahead and are always interested in the timetable for phase out and the replacements coming into the marketplace.

Honeywell created a great product that had little effect on refrigeration equipment, and it will be interesting to see what they come up with next."

Contact Honeywell

To learn more about the benefits of Honeywell refrigerants for your next project, call 1-800-631-8138 or visit

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