



Opteon™ XL20 Paves the Way for A2L Technology in Commercial Refrigeration

Hensley Beverage Company takes the lead in embracing next-generation solutions with its first Opteon™ XL20 system.

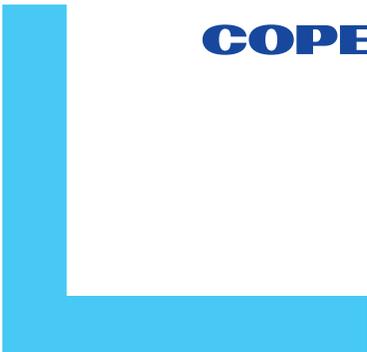




When you're one of the largest beverage distributors in the U.S., it's crucial to stay ahead of the curve on everything that drives customer satisfaction, corporate responsibility, and a strong bottom line.

Hensley Beverage Company did exactly that when it collaborated with Chemours and American Refrigeration Supplies, Inc. (ARS) to implement a system utilizing a new-generation A2L refrigerant, Chemours Opteon™ XL20 (R-454C).

Completed in 2023, the installation paves the way for companies throughout the commercial refrigeration industry to embrace refrigerant technologies that are both cost-effective and environmentally sustainable.



Situation

Hensley Beverage, a Phoenix-based beverage wholesaler, supports a customer base of more than 9,000 accounts and more than 2,500 individual products, operating out of six locations across Arizona.

The company recently completed an acquisition that expanded its distribution footprint into New Mexico, making it one of the largest family-owned and operated beverage distributors in the nation. As it grows, Hensley remains committed to maintaining exceptional product integrity, upholding its multi-generational family business legacy, and supporting a variety of environmental objectives.

These factors, coupled with the current regulatory landscape (notably, the phasedown of legacy

hydrofluorocarbon (HFC) refrigerants), has put Hensley's focus on ways to upgrade its refrigeration systems.

For the past several years, Chemours, ARS, and Hensley have worked together to retrofit the distributor's existing R-22 and R-404A systems to Opteon™ XP40 (R-449A), a hydrofluoroolefin (HFO) blend offering zero ozone depletion potential (ODP) and a significantly lower global warming potential (GWP) than legacy products.

However, with the ongoing phasedown of HFC refrigerants under the U.S. EPA's American Innovation and Manufacturing Act (AIM), the teams began weighing the benefits of an even bolder upgrade.

"Hensley Beverage is proud to partner with Chemours, TBSI, and ARS to help develop innovative solutions and responsible business practices that drive sustainability in our community. These groundbreaking results are a culmination of partnership and collaboration. It is refreshing to work with three organizations that are this passionate about developing pioneering products that will help shape a better future for the communities we serve."

Alex Dunn

SVP of Operations, Hensley Beverage

Solution

Even as Chemours, ARS, and Hensley continued to strategically employ retrofit solutions in some areas, they explored options that would put the company in a stronger position for the long term.

Chemours recommended bringing Opteon™ XL20 (R-454C) into Hensley's refrigeration plan. A mildly flammable refrigerant with an ASHRAE A2L safety classification, Opteon™ XL20 is designed for use in new equipment, so Hensley identified an old R-22 system near the end of its life that was ideal for replacement by a new system using Opteon™.

Opteon™ XL20 has been used for several years in Europe and is expected to become the new norm in the U.S. by 2026, based on the current direction provided by the EPA. Leveraging its experience in Europe, the Chemours team of technical service and business development resources is prepared to support end users as they consider trial installations using A2L refrigerants.

Opteon™ XL20—the future of sustainable low- and medium-temperature refrigeration

- GWP of 148 (a 96% reduction versus R-404A)
- Zero ODP
- Enables much higher charge sizes than highly flammable A3 refrigerants
- Is a close performance match to R-22 and R-404A
- Offers the optimum balance of performance and environmental sustainability
- Provides an easy, cost-effective alternative to legacy refrigerants in new equipment applications
- Utilizes well-known technology for ease of service and maintenance

See Figure 1 - Opteon™ XL20 features

“Hensley was an early adopter of Opteon™ XP40, retrofitting equipment to experience better environmental outcomes, as well as high performance in low- and medium-temperature applications. Experiencing these benefits of HFOs whet their appetite to ask, ‘What next?’ With strong dedication to supporting their communities and the environment while operating an efficient and thriving business, Hensley is a company that pushes the envelope. Chemours was ready with our next-generation Opteon™ XL20—that will ensure they achieve maximum performance, operating efficiency, and sustainability.”

Joe Martinko

President, Thermal and Specialized Solutions, Chemours

“Our industry is undergoing some of the most significant regulatory changes in history and will be for the foreseeable future. ARS was excited to work with Chemours and be a part of the launch at Hensley of the new low GWP refrigerant. It’s been a privilege for ARS to help bring together such an excellent group of partners for this project—and to install a first-of-its-kind system right here in Tucson, a community we’ve proudly served since 1948.”

John White

President, American Refrigeration Supplies, Inc.

Figure 1 - Opteon™ XL20 features

Opteon™ XL20 Properties

ASHRAE Number	R-454C
Composition Weight %	R-32/R-1234yf 21.5/78.5
Molecular Weight	90.8 g/mol
Normal Boiling Point	-45.6 °C (-50.0 °F)
Critical Pressure	4318.9 kPa (626.4 psia)
Critical Temperature	85.7 °C (186.2 °F)
Liquid Density at 21.1 °C (70 °F)	1058.2 kg/m ³ (66.1 lb/ft ³)
Ozone Depletion Potential (CFC-11 = 1.0)	0
AR4 (AR5) GWP (CO ₂ = 1.0)	148 (146)
ASHRAE Safety Classification	A2L
Temperature Glide	~6 K (~10.8 R)
LFL (UL 60335 2-89 WCF) ¹	0.291 kg/m ³ (0.018 lb/ft ³)

¹ Based on worst-case formulation (WCF) flammability.

Collaboration and Installation



The installation brought together additional resources from the HVACR industry, including Copeland and Heatcraft Refrigeration Products—two ARS manufacturing partners—as well as Technical Building Services, Inc. (TBSI), the local HVACR service provider. As global HVACR technology leaders helping customers achieve their sustainability, decarbonization, and regulatory compliance goals, Heatcraft and Copeland had the knowledge and experience of emerging A2L requirements and the capabilities to support the project. TBSI was selected as the contractor for installation and servicing.

With the team assembled, Chemours took the lead on the project, ensuring that the contractor, Hensley's service personnel, and others involved were certified through the ESCO Institute's A2L refrigerant training program, and answering any questions from the local authorities.

After safely recovering the R-22 for use in other Hensley systems, the team from TBSI started removing the existing Keg 6 equipment, hanging new evaporator coils, and running new refrigerant lines. Installation, evacuation, and charging procedures were very similar to the current refrigerants in use by industry, making for a time- and cost-efficient process.

"Copeland has always been focused on not just setting the standard in climate solutions with leading brands in compression, controls, software, and monitoring—but pioneering the evolution in this space. Our role in the system design and installation for Hensley was right in our wheelhouse. What we accomplished together demonstrates that by bringing together energy-efficient products, regulation-ready solutions, and expertise, we can revolutionize the next generation of climate technology for the better."

Brian Schroeder

Engineering Manager, Refrigerants, Copeland

"Our tools and gauges were already enabled for the R-454C refrigerant. The startup and charging of both systems went pretty smoothly. TBSI is proud to have participated in the project at Hensley and, by doing so, adding to the variety of equipment we've worked on since founding our business in 1990. This was a great opportunity to grow our experience with A2Ls."

Sergio Pelayo

Vice President, TBSI

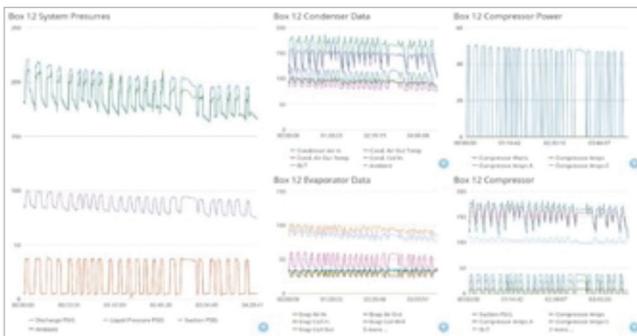




Heatcraft (Larkin) units, along with Copeland monitoring equipment



Indoor coils, installed within the keg room cooler



Copeland monitoring data

To make sure the system performed as expected, Copeland applied monitoring units to the systems that capture nearly two dozen data points every second. The data has shown that the systems are running as designed.

"We are thrilled with the results of the R-454C project with Hensley Beverage. As we continue our journey toward new regulation compliance, this successful collaboration has been instrumental in leveraging Heatcraft's new product design efforts, with A2L refrigerants being an important part of the mix. We are poised to lead the industry and provide more customers like Hensley with cutting-edge solutions that drive their success."

Bob Landi

Vice President and General Manager, Heatcraft Refrigeration Products

Summary

Influenced by upcoming regulatory changes and stronger organizational ESG commitments, the commercial refrigeration industry's transition to lower GWP refrigerants is inevitable.

Opteon™ refrigerants provide organizations with lower GWP options that can help extend the useful life of their systems, as well as new equipment options that enable decades of reliable operation. Moreover, these systems answer the consumer preference for businesses that utilize responsibly manufactured products and support a greener environment.

Hensley's approach demonstrates an ideal way for companies to meet the needs of refrigerating their products while following guidelines of the HFC phasedown.

It's important to assess where your equipment is in its lifecycle and determine if it makes the most sense in terms of budget, performance needs, and corporate vision to 1) retrofit existing equipment for more efficient and sustainable operation or 2) replace it with A2L refrigerant technologies and products.



For more information on the Opteon™ family of low GWP products, visit opteon.com.

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