INTRODUCING PURON ADVANCE™

A new refrigerant for a better future

LIGHT COMMERCIAL PRODUCTS

bryant®
Heating & Cooling Systems

Contents

Puron ADVANCE™

bryant® Heating & Cooling Systems

Dear Bryant Expert:

THE FUTURE OF LOW GWP REFRIGERANT IS HERE, AND PURON ADVANCE IS OUR ANSWER.

Regulations are a critical part of the HVAC business, and they can be challenging to say the least. But staying ahead of the curve is a way of life at Bryant. We take regulatory changes as opportunities to make our products better, more efficient, and more innovative. The #2023Ready product change set the stage for what we believe will be a successful transition to Puron Advance through innovations such as Axion technology. And now we enthusiastically answer the call for reduced global warming potential (GWP) with Puron Advance.

Puron Advance is the latest chapter in the evolution of refrigerants, the first major change since we introduced non-ozone depleting Puron® refrigerant in 1996. Now, with Puron Advance, Bryant once again shows a commitment to going beyond the minimum with a refrigerant that will easily surpass the EPA's lower GWP requirements for 2025.

Puron Advance delivers a greater than 75% decrease in GWP when compared to the original Puron. And, with operating pressures and temperatures similar to the original Puron, it will result in a relatively simple transition in the field for installers and service technicians.

To help you prepare for the lower GWP future, our Puron Advance launch kit includes:

- What is Puron Advance and why this is the best answer for low GWP refrigerants?
- Why do we need to change refrigerants?
- A brief history of refrigerants
- Comparison of Puron Advance vs. Puron and R-32
- Details on flammability, dissipation requirements, and field service procedures
- Key Messaging and Top 10 Things to Remember regarding Puron Advance

We hope the materials in this kit will help prepare you for a successful entrance into the future of reduced GWP refrigerants and Puron Advance. All this information is available now on HVACpartners, along with more detailed training courses on My Learning Center. We will continue to provide updates as new information becomes available, so be sure to re-visit the site periodically for the most current marketing resources.

Thank you for your support!

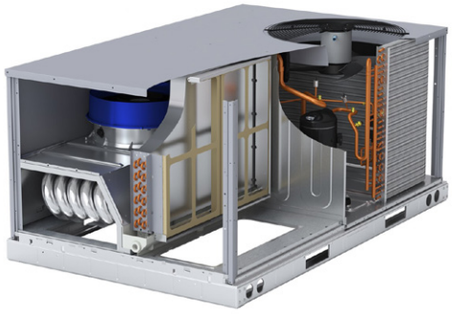
The Bryant Team

Introducing Puron Advance

Setting the Stage

Due to the full-system approach that Bryant took to become #2023Ready, we can confirm that the transition to R-454B will be far less of a change for our customers. Let's take a moment to recap the system approach that has put Bryant, and our customers, in a position to move into this refrigerant transition with ease.

For 2023, the system approach included the introduction of our new Axion Technology. The addition of of Axion fan has set us apart from our competition by offering our customers industry's first efficient indoor fan system using Vane Axial fan with electric commutated variable speed motor. This new design offers customers a more efficient, easier to service, and cost-effective unit. Axion fans contain 75% fewer parts and are 40% more efficient when compared to standard belt-pulley fan units.



Additionally, Bryant continues to make rooftop startup easier with our integrated unit control board (UCB) standard on all units. Now our RTUs have simple, fast plug-in connectors with clearly labeled connections points to reduce installation time. Setting up the fan is simple by an intuitive switch and rotary dial arrangement located right on the UCB. This means there is no longer a need to adjust or replace belts or pulleys to set fan speed. That saves time and lets your contractor get off the roof and on to the next job!

These technology and serviceability improvements give our lineup a competitive advantage that will create a lasting positive effect on the overall equipment performance for years to come.

We are ready for the 2025 refrigerant transition!

What Is Puron Advance?

Puron Advance is Bryant's solution for meeting the EPA's global warming potential (GWP) limits for refrigerants and the scheduled phasedown of higher GWP refrigerants like Puron. It is the refrigerant we will be transitioning to for our roof top and split system light commercial products. We plan to start this transition in mid-2024 in order to be ready for the 2025 deadline.

BUT WHAT *EXACTLY* IS PURON ADVANCE?

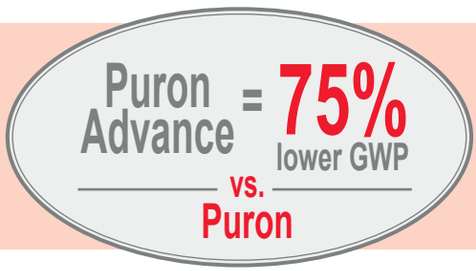
- Puron Advance is Bryant's trade name for R-454B
- Puron Advance performs very well in normal and high ambient conditions
- Puron Advance offers similar operating temperatures, pressures, and oil compatibility to Puron, meaning technicians will have less of a learning curve compared to the alternative

WHAT'S THE DIFFERENCE BETWEEN PURON ADVANCE AND PURON?

	Puron	Puron ADVANCE™
Refrigerant Type	R-410A	R-454B
Launch Timing	1996	Early 2024
GWP Level	2,088	466
Ozone Depletion Potential (ODP)	No ODP	No ODP
ASHRAE Classification	A1	A2L
Flammability	No Flame Propagation	Mildly Flammable
Leak Detection	None	Required

THE BOTTOM LINE

Puron Advance, with a 75% reduction in GWP from Puron, is the refrigerant with the most similar operating characteristics to Puron. Bryant is committed to providing our planet and people a better future by offering the best refrigerant for each application.



Why the Change from Puron to Puron Advance?

Change is inevitable in every industry, and HVAC is no different. We just transitioned to new minimum efficiency standards for 2023, and now we turn our focus to 2025 and a new target: global warming potential (GWP) of refrigerants.

THE FIGHT AGAINST GLOBAL WARMING IS HEATING UP

Global leaders worldwide are adopting much stricter control over the GWP of refrigerants, and the United States is getting on board as well. The Environmental Protection Agency (EPA) plans to limit the GWP of refrigerants to a maximum of 700 starting in 2025. At the same time, the EPA is implementing a phasedown of existing, higher GWP refrigerants, including Puron. And if you were around for the R-22 phase-out, you might remember the supply issues and hefty price increases that ensued during the phase-down period.

Summarizing the EPA's Final EPA Ruling: What You Need to Know

As anticipated, the EPA's final ruling, released in late 2023, sets the new global warming potential (GWP) for residential and light commercial HVAC products and systems at a maximum of 700. The ruling includes final dates of manufacturing and dates of install, guidelines for servicing existing systems with Puron (R-410A) and makes the distinction between "products", "parts", and "systems" under the terms of the ruling.

NOTABLE HIGHLIGHTS

Takes effect January 1, 2025:

On this date, all newly manufactured or imported light commercial products, HVAC indoor units, outdoor units, SPP and Mini-VRF must be designed for use with a low GWP refrigerant.

Three-year sell-through for light commercial rooftops:
You can install existing R-410A light commercial rooftop inventory until December 31, 2027, provided it was produced and imported into the USA before January 1, 2025.

One-year sell-through for split systems:
You can install existing inventory of new, pre-2025 R-410A split systems until December 31, 2025.

Service provisions for light commercial split systems:
Individual parts designed for Puron/R-410A, including complete outdoor units, can be replaced with like parts manufactured after December 31, 2024 provided they are labeled "for service only". Based on current rule language, this can continue indefinitely. Please note state requirements in CA, WA and potentially others, will not allow the "for service" provision after 12/31/2025. Consult your local code requirements to ensure compliance."

Requirement	Final Rule - As of 12/26/23			
	Packaged	Splits	Mini-VRF (< 65k BTU)	VRF (> 65k BTU)
GWP	700	700	700	700
RNC Date	1/1/2025 Date of Manufacture or Import	1/1/2025 Date of Manufacture or Import	1/1/2025 Date of Manufacture or Import	1/1/2026 Date of Manufacture or Import
AOR New Systems Date	1/1/2025 Date of Manufacture or Import	1/1/2025 Date of Manufacture or Import	1/1/2025 Date of Manufacture or Import	1/1/2026 Date of Manufacture or Import
AOR Service Restrictions	Parts Only	Parts + Complete R-410A Outdoor Unit	Parts + Complete R-410A Outdoor Unit[1]	Parts + Complete R-410A Outdoor Unit[1]
R-410A Inventory Sell-Through	Three-Year	One-Year (New) Indefinite (Service)	One-Year (New) Indefinite (Service)	Indefinite (Service)

WE'LL BE READY – AND SO WILL YOU

As a leader in the HVAC industry, Bryant has been working towards a more GWP-friendly refrigerant for over 10 years. That's when we first anticipated growing concerns over global warming potential of refrigerants. Now, after years of research, development and with products currently in field trials, we are ready to begin the transition to Puron Advance.

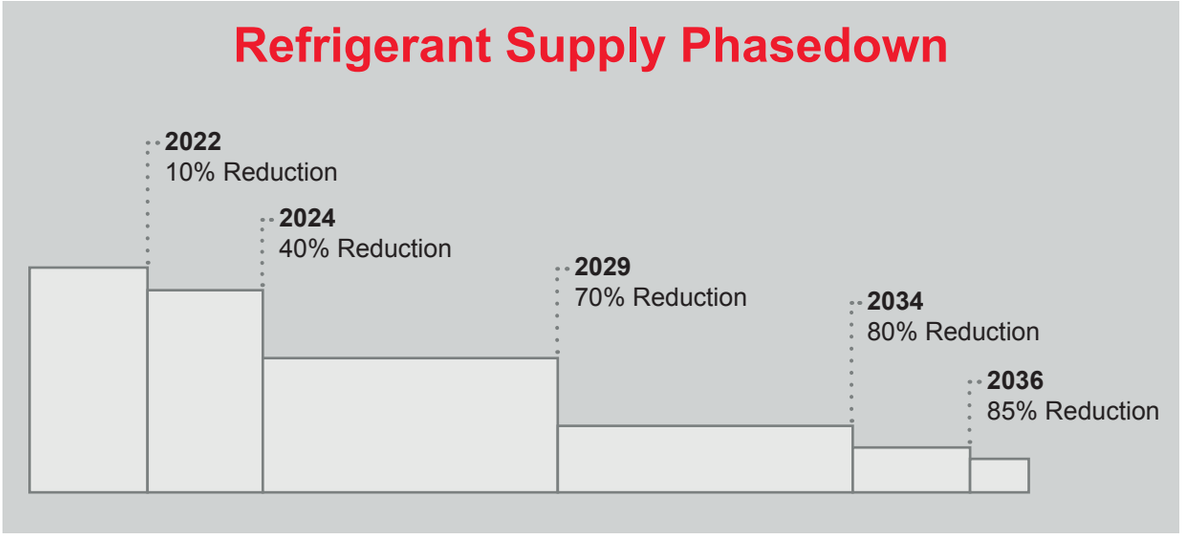
Refrigerant Phasedown Timeline

IT'S NOT A COMPLETE PHASE-OUT, BUT IT'S ALREADY MAKING AN IMPACT

The EPA's vision for reduced GWP refrigerants in 2025 is just one part of the program. The other is a targeted phasedown of higher GWP gases like R-410A. We're not calling it a phase-out because the current goal isn't a complete ban – it's a gradual, 85% reduction in global warming emissions from refrigerants by 2036.

Keep in mind that higher GWP refrigerants will remain available for the foreseeable future – but with more limited quantities and expected higher costs. In fact, the phasedown actually began in 2022 with a 10% reduction, so it's already in progress.

If you've noticed a difference in R-410A pricing and availability, that's why.



BE PREPARED: THE BIGGEST CUT SO FAR

In 2024, refrigerant supplies saw their largest cuts to date of the phasedown – a 30% reduction of 2022 levels – which represents a total of 40% from 2021. This rate will remain in place until 2029 when we will see another 30% reduction. As you might imagine, supplies of R-410A will continue to dwindle, and prices will continue to rise.

That means reclaiming R-410A will become – and remain – a very important part of your daily routine!

While many of you may remember what it was like when the industry shifted away from R-22 to non-ozone-depleting refrigerants like Puron, this transition will be far more accelerated, and will see the cost of Puron increase more quickly.

BRYANT'S COMMITMENT TO YOU

Bryant will deliver comfort, efficiency and products with dramatically reduced GWP to meet and beat regulations expected to take effect in 2025.

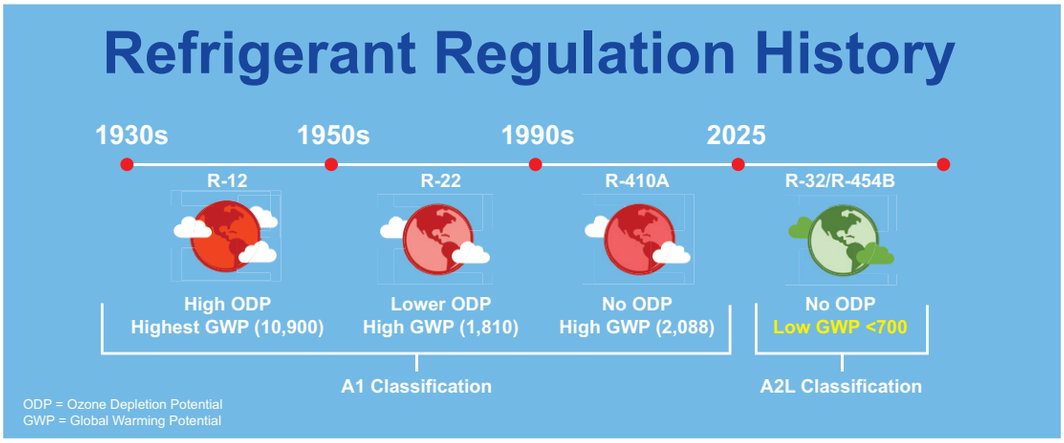
We've been working towards this goal for more than a decade... are currently in field trials... and will start the transition in early 2024.

Puron ADVANCE™

Refrigerants Through the Years: A Historical Perspective

If you examine the timeline below, you'll see a history of change for refrigerants. And if you look closely, you'll see the transitions from R-12 to R-22 and to Puron were focused on reducing ozone depletion.

Something you won't see on the chart: the previous transitions were made a little easier due to the number of readily available alternatives. Switching from R-410A to a lower GWP refrigerant has been a bit more complicated due to the lack of available options that didn't require a refrigerant with a higher flame propagation.

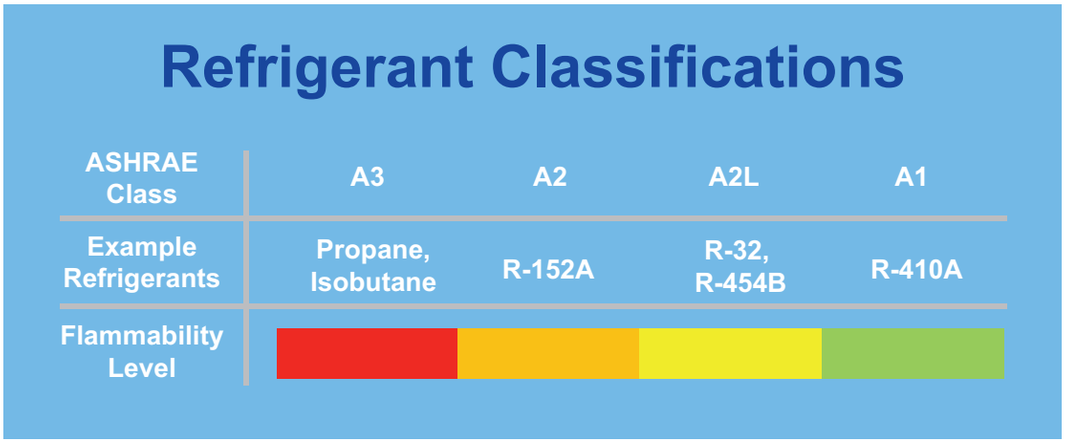


WITH CHANGE COMES COMPROMISE

The transition from R-22 to Puron came with an increase in GWP. It wasn't ideal, but it helped us achieve the goal of finding a non-ozone depleting refrigerant.

Now, with the change from Puron to Puron Advance, the focus has been to dramatically reduce global warming potential, while maintaining no ozone depletion. To achieve this goal, the industry had to collectively make another concession: a shift in flammability classification.

R-12, R-22 and Puron all fall into the A1 classification of refrigerants which have no flame propagation. Puron Advance falls into a new category – A2L – which is "mildly flammable." We'll go into more detail on flammability later – but be assured that the new refrigerant is still VERY low on the flammability scale and is quite safe.



ONE FINAL WORD: PERSPECTIVE

Change can be unnerving, but it's often necessary. If you were around for the transition to Puron, you might remember some concern over increased operating pressures. In the end, products were tested, technicians were trained, and the transition to Puron went smoothly. We are expecting more of the same as we make the switch to Puron Advance.

Refrigerant Make-Up and Comparison: Puron Advance vs. Puron vs. R-32

Bryant is committed to providing our planet and people a better future by offering the best refrigerant for each application. To that end, Puron Advance became our leading choice for replacing Puron due to the performance similarities between the two. We will be using Puron Advance in all of our ducted and ductless residential products and our light commercial products.

Here's a closer look at the high-level similarities and differences between the three refrigerants:

	Puron	Puron Advance	R-32
	Non-compliant with new unit manufacturing as of 1/1/25	Compliant for Phase 1 of low GWP alternatives	Compliant for Phase 1 of low GWP alternatives
GWP	2088	466	675
Discharge Temperatures	Lower discharge temperatures	Lower discharge temperatures	Higher discharge temperatures
Glide	Negligible glide	Negligible glide	No glide
Formula	50% R-32/50% R-125	68.9% R-32/31.1% R-1234yf	100% R-32

SYSTEM DESIGN CHANGES

New systems with Puron Advance will include:

- Factory-installed leak detection
- Active dissipation system
- Ignition source isolation
- No competent ignition sources
- New metering devices for different pressures
- New compressors

SERVICING

- Charging/servicing techniques will remain the same when switching from Puron to Puron Advance as they are both negligible glide blends
- Charging charts will be updated to reflect the new refirigerant and unit design
- R-32 and R-454B systems should be properly leak-checked, and should be evacuated and purged before any brazing
- Reclaiming equipment and other servicing tools will need to be A2L-certified for both R-32 and R-454B - i.e. a separate set of hoses is required for each unique refrigerant

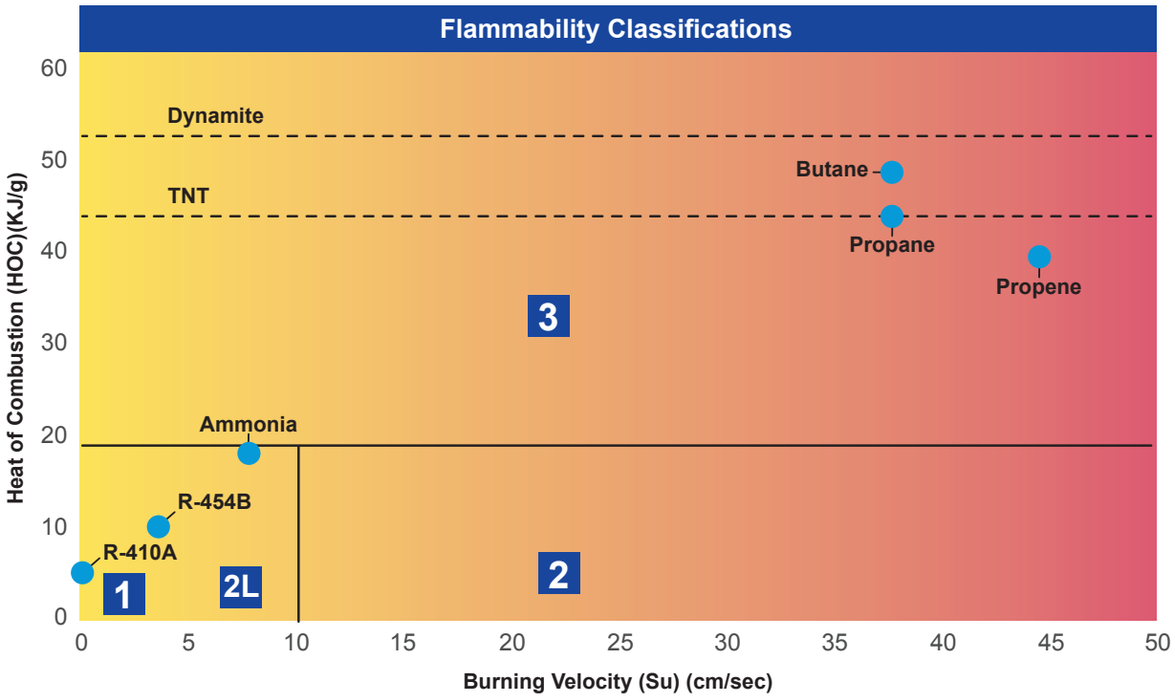
As you would expect, the above content is a simplified and high-level summary of the thinking that went into our decision on Puron Advance. These findings and much, much more were the result of years' worth of research, development, and testing. Continue reading for a more detailed understanding of Puron Advance and how to safely work with this new refrigerant.

Working with Puron Advance

What About Flammability?

ASHRAE Classifications A1 vs. A2L vs. A3

As previously touched on, the main apprehension for Puron Advance is its "mildly flammable" classification. We get it. Nobody wants to think their new HVAC system is going to be a potential hazard. But the fact of the matter is, Puron Advance falls into a new ASHRAE classification: A2L, or mildly flammable. It is important to note that Puron Advance poses no significant risk for installers, service technicians or business owners.



COMPARING CLASSIFICATIONS

Looking at the chart, you'll see how Puron Advance compares to previous refrigerants and other, more flammable gases:

A1 – No Flame Propagation: Current refrigerants like R-410A (Puron) and R-134A are classified as A1 with no ability to carry a flame.

A2L – Mildly Flammable: To hit the new targeted GWP levels, manufacturers are switching to A2L-classified refrigerants R-32 or R-454B which are considered mildly flammable, difficult to ignite, and have a low flame speed.

A3 – Higher Flammability: By comparison, propane, a gas familiar to many HVAC installers and service technicians, is classified as A3 for higher flammability and its explosion potential.

LET'S PUT A2L FLAMMABILITY IN PERSPECTIVE

- A2L refrigerants are so mildly flammable that there must be a direct flame source and a high concentration of refrigerant to create a flame
- If an A2L refrigerant were to ignite, the flame would be unsustainable
- An A2L refrigerant flame would spread at an extremely slow speed – less than half a mile per hour – you can walk faster than that

In the final analysis, Puron Advance necessitated some minor equipment modifications by Bryant and will require use of A2L-certified equipment for refrigerant reclaiming. However, the service and installation procedures for equipment charged with Puron Advance are, for the most part, the same as those for Puron. See the section on *Field Service Procedures* for more details.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Refrigerant Charge Limits and Dissipation Requirements

Now let's look at the new refrigerant charge limits with which all manufacturers using an A2L refrigerant must comply. According to new UL guidelines, dissipation will be required in the event of a refrigerant leak and will be based on a combination of total square footage and total system charge. The total system charge includes the line set, indoor coils, and the outdoor coil – in other words, any component that holds refrigerant. UL has set the following guidelines:

m1 = Charge limits that fall at or below 3.9 pounds of total charge will not require a dissipation system.

m2 = Charge limits that fall between 4.0 – 33.9 pounds of total charge will require a dissipation system. Note: Most typical residential and light commercial HVAC equipment will fall into this category.

m3 = Charge limits that fall between 34.0 – 169.3 pounds of total charge will require a dissipation system in addition to other requirements that may be defined by separate commercial or control room requirements.

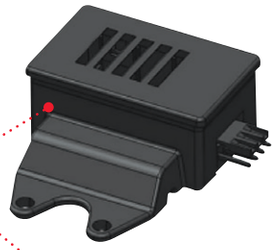
OUR COMMITMENT TO SAFETY

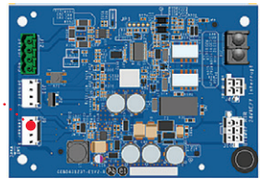
In response to this and to instill confidence in our products, we will be designing ALL our units, regardless of charge amount, with the SAME dissipation system to meet the new requirements. Additionally, we opted for a leak dissipation system designed with a leak detector for activation of a unit fan and a dissipation board. It was determined that having a continuous fan as the dissipation system was not justified, as it requires excess energy. The decision to go with this consistent safety design across all products utilizing Puron Advance provides you with the extra confidence that all our units have safety measures built into the design.

BRYANT DISSIPATION SYSTEM

As stated, all products using Puron Advance are designed with a dissipation system that consists of:

- A factory-installed leak sensor* located in the condensate drain pan area
- A dissipation control board
- Unit blower





As with all Bryant products, we put these new leak-detecting sensors through rigorous testing procedures to ensure durability, reliability, and longevity. It is important to note that all sensors are not created equally. The sensors chosen by Bryant are of a quality that adheres to our standards of excellence. We have tested multiple sensors in the last several years and are avoiding single-use, or throw-away, sensors as they will create an equipment operation gap and inconvenience for the owner/occupant, waiting for parts to be ordered and replaced.

How It Works

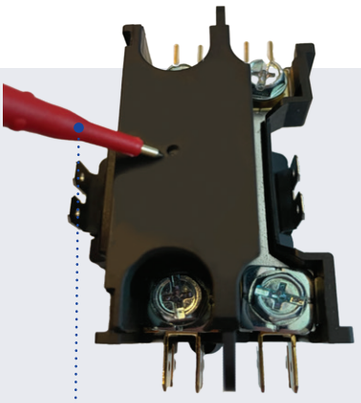
In the event of a leak, the leak sensor sends a signal to the dissipation board, which energizes a blower to dissipate the refrigerant into the air stream.

Once activated, the blower is always on in dissipation mode and stays on for five minutes after the sensor readings are below the dissipation threshold. The system allows a heating or cooling call after 15 minutes of dissipation as long as the sensor is reading below the threshold. You can find more detailed information about the Bryant dissipation system in the A2L training modules on My Learning Center.

* Subject to change, pending final design

Ignition Source Isolation

In addition to installing dissipation systems on all our Puron Advance products, we are also taking the required steps to assess our products' electrical systems and mitigate any potential ignition sources within them. Below are examples of the steps we are taking with our products to ensure no ignition source exists.



Compressor Plugs

- The enclosed (molded) plugs on our compressors have been assessed and provide the necessary isolation from ignition

Electrical Ignition Points

- Wire sleeves may be installed on compressor and crankcase heater wiring to mitigate potential ignition points
- Pinch points are carefully assessed at the factory

Contactor

- A new top cover design eliminates the gap that resulted from manual push button operation This patented design feature still allows for manual operation by using multimeter probes
- Minimal air gaps inside the contactor act as a flame arrestor

- Protection is factory-installed on wiring to prevent pinching and arcing
- Our approved electric heaters are not considered an ignition source

* Subject to change, pending final design

Our New Line Up

All of the changes we've made to our products means we needed a new lineup. Our current product families and their new R-454B. Equivalents are shown in the tables below.

	Current R-410A Offering			
	Family	**Heat Type**	**Stage**	**Tonnage**
Legacy Line™	582K	Gas Heat	2	3-27.5
	559K	Electric Heat (Optional)	2	3-27.5
	547K	Heat Pump	2	3-25
Preferred Series™	581K	Gas Heat	2	3-25
	551K	Electric Heat (Optional)	2	3-25
	549K	Heat Pump	2	3-10

	Future R-454B Offering				
	Family	**Heat Type**	**Stage**	**Tonnage**	**Target Release**
Legacy Line™	582L	Gas Heat	2	3-27.5	Q2 2024
	559L	Electric Heat (Optional)	2	3-27.5	
	547L	Heat Pump	2	3-25	
Preferred Series™	581L	Gas Heat	2	3-25	Mid 2024
	551L	Electric Heat (Optional)	2	3-25	
	549L	Heat Pump	2	3-10	

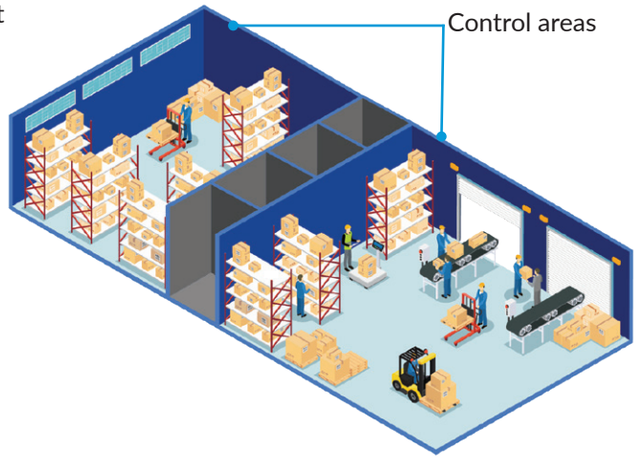
Storage

As we transition to utilizing Puron Advance, it will be important to acquaint yourselves with the proper storage requirements for this refrigerant. The International Fire Code (IFC) and the National Fire Protection Association (NFPA) have established detailed codes and standards for on-site refrigerant storage.

Things to consider for storage include:

- Maximum allowable quantities
- Control areas within a building
- Shelving materials and spacing
- Ambient temperatures
- Signage and documentation

We recommend visiting *NFPA.org* to find the latest information on storage.

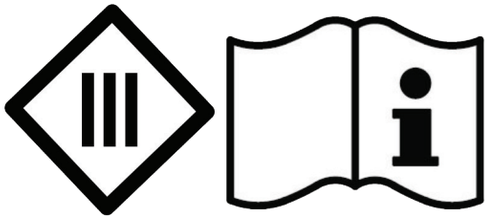


Required Labels

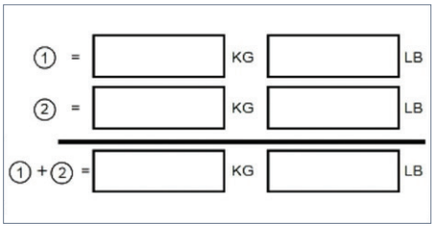
In accordance with UL requirements, new and additional labels are now required on our equipment and literature to draw attention to the use of Puron Advance in our products. These labels help to warn technicians of the mild flammability of the refrigerant and the new components that require extra attention to detail, such as recommendations to review literature for more details. You can learn more about these labels by taking the new A2L refrigerant training course at *MyLearningCenter.com*.

Flammable Pictogram

Low Voltage Wire Label

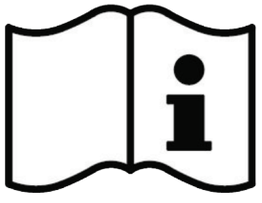


Charging Label



Compressed Gas Pictogram

Operator's Manual Symbol



Transportation

With the transition to Puron Advance, technicians may be faced with additional protocols to properly and safely transport this new refrigerant.

The rules for transporting a refrigerant like Puron Advance are set by the U.S. Department of Transportation – with additional requirements coming from state and municipal departments of transportation.

We recommend referring to these groups for the very latest guidance on the safe transport of A2L refrigerants.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Cylinder Differentiation

Another change to be aware of as Puron Advance is introduced has to do with the cylinders within which the refrigerant is transported. Changes in the cylinder design have been made to help technicians in the field avoid any confusion between two different refrigerants. Below are seven ways to differentiate the new Puron Advance cylinders.

COLOR

As of 2020, all refrigerant cylinders went to a universal light green-gray color. The A2L refrigerant cylinders will have a red top for identification, to warn that it contains a mildly flammable substance.

THREADS

Cylinders for A1 refrigerants like Puron have a right-handed thread. Cylinders for A2L refrigerants, like Puron Advance, have a left-handed thread. And for an extra safety measure, connectors for A1 refrigerants will not work to connect an A2L cylinder.

PRESSURE RELIEF VALVES

Noticeable changes in cylinders for the A2L refrigerants are in the pressure safety design on the top.

- A1 service cylinders feature a rupture disc for safety.
  - A rupture disc releases all the cylinder contents when it activates.
- A2L service cylinders are required to have a pressure relief valve instead of a rupture disc, for increased safety.
  - A relief valve will only release content until the pressure setting allows the valve to close.

WARNING LABELS

Two warning labels are required for cylinders that contain A2L refrigerants.

- The **Flammable** pictogram warns of potentially flammable contents. It must appear on all cylinders containing A2L refrigerants.
- The **Compressed Gas** pictogram warns of high-pressure gas that could explode when heated. It may be used on cylinders containing A2L refrigerants.

DISPOSAL PROCEDURE

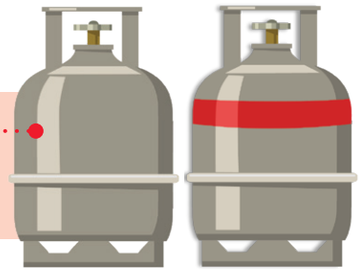
Handling of disposable refrigerant cylinders for A1 and A2L will have a slight difference.

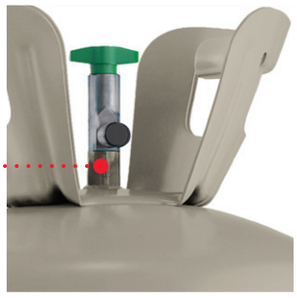
- With A1 cylinders, the technician removes or punctures the rupture disc.
- For A2L cylinders, a non-sparking piercing tool must be used to puncture the side of the cylinder itself.

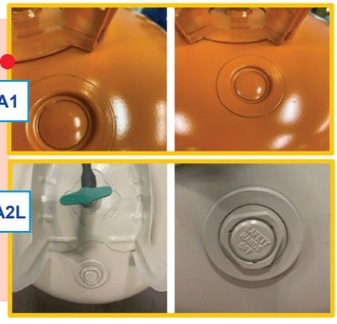
RECOVERY

Both A2L and A1 recovery cylinders are gray in color with a yellow top. A2L cylinders may also have a red band or stripe, as well as left-handed threads.

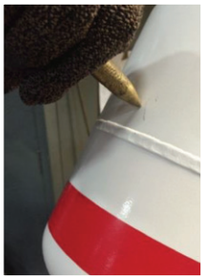
NOTE: Keep all refrigerant types clearly identified and do not mix refrigerants.





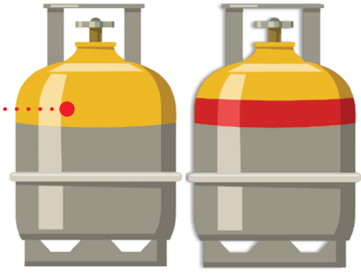


A1 Rupture Disc



A2L Rupture Disc

Images: https://www.ahrinet.org/sites/default/files/2022-11/AHRI_Guideline_Q_2016.pdf



Tool Changes

The following chart compares service items and tools you will need when working with Puron Advance and how this compares to the ones you are used to using with Puron. It is always recommended to inspect refrigerant service tools and equipment for damage and to ensure compatibility with both A1 and A2L refrigerants. If you're unsure about the compatibility of any of your tools or instruments, check the AHRI website or contact your Bryant representative to learn more.

Service Item / Tool	Use with Puron Advance (vs. Puron)
Gauge manifold	No change
Charging hoses	Separate set for each type of refrigerant
Refrigerant leak detector	Move to A2L-compatible
Electric hand tools	Non-sparking required
Ventilation Fan	Similar (may be differences in machine rooms)
Dry chemical / CO2 fire extinguisher	Chemical-compatible
Scales	No change
Gas detector	Move to A2L-compatible
Vacuum pump	Check with manufacturer
Recovery machine	Move to A2L-compatible
Refrigerant recovery cylinder	Must be for flammable gas (GHS label); Left-hand threads
Refrigerant cylinder	Left-hand threads

Field Service Procedural Changes

We've covered tools and equipment – what about processes and procedures: practical tasks you perform in the field? Review the chart below for a comparison of how required field service procedures are – or are not – changing with the move from Puron to Puron Advance.

Requirement	Puron	Puron Advance
Remove refrigerant safely following local and national codes	Required	Required
Purge circuit with inert gas (nitrogen)	Best Practice	**Required**
Evacuate	Best Practice	**Required**
Purge with inert gas for five minutes	Best Practice	**Required**
Evacuate again	Best Practice	**Required**
Open the circuit by cutting or brazing	Final Step	Final Step
For repairs, purge with nitrogen during brazing	Required	Required
Pressure test	Best Practice	**Required**
Leak test	Best Practice	**Required**
Evacuate system again after service	Required	Required
Charge system	Required	Required

Many actions that are now required with Puron Advance were already best practice. So, if you've been taking those extra precautions already, your processes won't need to change at all. With Puron Advance, we're requiring you to take extra precaution to ensure all the refrigerant is out of the system prior to opening it for repair or replacement service. Always refer to the installation manual for procedures that may have changed with Puron Advance.

Puron Advance Key Messaging

Keeping with its long history of leading environmental responsibility, Bryant has once again taken a leadership role in offering the refrigerant of the future. Here are the key messages for you to remember as you work through this transition.

1 **Bryant is focused on providing a refrigerant that offers a higher efficiency and the lowest GWP that will positively impact people, our planet, and our communities.**

- Bryant's parent company, Carrier Global Corporation, has set an ambitious goal to help our customers avoid more than one gigaton of greenhouse gas (GHG) emissions from their carbon footprint by 2030 by leveraging our energy-efficient products, using lower global warming potential (GWP) refrigerants and more.
- With its GWP of 466, Puron Advance was selected as the best refrigerant solution for ducted and ductless residential and light commercial products to minimize environmental impact and energy use, while providing performance, safety, and durability.
- With the switch Puron Advance, we will dramatically reduce the GWP level while maintaining no ozone depletion. This will continue to aid in the reduction of damage to the ozone layer – the layer around the earth that inhibits UV radiation from negatively impacting the environment and human health.
- Carrier Global Corporation's ducted and ductless residential and light commercial products switching to Puron Advance is like avoiding the greenhouse gas emissions from over 5 million gas powered passenger vehicles each year.* That's a big impact!

2 **Bryant is easing fears of dealers, technicians, and occupants through robust training resources and product enhancements.**

- Switching to Puron Advance will be a relatively easy transition for technicians because it operates at temperatures and pressures like those of our current refrigerant, Puron.
- Bryant technicians and installers have access to thorough training so they can be certified in knowing how to properly install, maintain, and reclaim the Puron Advance.
- Puron Advance falls under the classification of A2L by ASHRAE. A2L refrigerants have lower toxicity and lower flammability than A2 refrigerants. While A2Ls are more flammable than A1s, such as R-410A, they are still much less flammable than natural gas or propane and even things like rubbing alcohol and nail polish remover like you may already have in your home.
- Bryant is committed to safety and will, therefore, include a dissipation system in all products containing Puron Advance. Technicians, owners and occupants alike can be confident that the required safety measures have been built into our system designs.

3 **Bryant goes beyond the regulatory minimums and thinks about long-term innovations and solutions.**

- As a leader in the HVAC industry, we have been working towards creating a more GWP-friendly refrigerant since before 2010. Puron Advance will deliver comfort, efficiency and a dramatically reduced GWP of 466 to meet regulations expected to take effect in 2025.
- With the EPA's decision to require GWP's to be at or below 700 by January 1, 2025, our choice of Puron Advance, with a GWP of 466, will be able to meet and exceed this requirement. Puron Advance represents a 75% reduction in GWP compared to Puron.

Top 10 Things to Remember About Puron Advance

1. Puron Advance is Bryant's choice to replace Puron and to meet the new EPA requirements for a low GWP and zero ozone depletion refrigerant.

2. Puron Advance will be used on all Bryant ducted and ductless residential products and our light commercial products.

3. Puron Advance offers similar operating temperatures, pressures, and oil compatibility to Puron – but delivers a GWP of 466 which is a 75% reduction in GWP vs. Puron.

4. Puron Advance falls into a new ASHRAE class of refrigerants called A2L – which are only mildly more flammable than A1 refrigerants, and which are less flammable than many common substances found in homes such as rubbing alcohol or nail polish remover.

5. At launch, ALL new Bryant products with Puron Advance will include a factory-installed leak dissipation system to meet new UL requirements.

6. All Puron Advance products – including all components and accessories within – have been assessed to ensure no ignition source providing you with the extra confidence around our built-in safety measures.

7. Many of the field service procedures that are now required with Puron Advance were already best practices – so your process should not need to change at all.

8. Cylinders containing Puron Advance will have obvious differences – such as different colors, left-handed threads, and pressure relief valves to name a few – to avoid any confusion in the field.

9. Puron Advance allows the highest overall refrigerant supply through the refrigerant emissions supply phasedown – which means less change for you.

10. Carrier Global Corporation's ducted and ductless residential and light commercial products switching to Puron Advance is like avoiding the greenhouse gas emissions from over 5 million gas-powered passenger vehicles for one year.* That's a big impact!

* Assuming Bryant residential, DLS and light commercial units shipped with refrigerant annually. *https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*

Frequently Asked Questions

Puron Advance - General

1) Why is Bryant switching to a refrigerant that falls in the A2L classification – which makes it mildly more flammable than Puron?
   In order to meet the new requirement a low GWP refrigerant, that also maintains no ozone depletion, the industry as a whole had to move to this new A2L classification.

2) What does A2L mean?
   A2L is a newly created classification on the ANSI/ASHRAE Standard 34 chart for classifying refrigerants. The chart is broken down between A and B and 1 through 3. "A" means lower toxicity, while 2 represents the flammability level. Previously, A2L was just A2. The "L" was added to the chart because the new refrigerant did not burn at a rate similar to an "A2" classified refrigerant, but there was a minimal flame propagation potential requiring a new classification.

3) Why is Puron Advance categorized as "mildly flammable"?
   In order for Puron Advance to propagate there must be a direct flame source and a high concentration of refrigerant. Even with these conditions, a flame is difficult to ignite and difficult to sustain – hence the term "mildly flammable".

4) How long will I be able to sell products with Puron?
   The final EPA ruling allows for a three year sell through for packaged products, like rooftops. This means that any light commercial rooftops built and imported before January 1, 2025, with Puron (R-410A) must be installed before January 1, 2028. In the latest ruling from the EPA, split systems manufactured and imported before January 1, 2025 will have a one year sell-through, with a service rule that allows the installation of a condensing unit or fan coil with a service label in perpetuity (state dependent). Please stay tuned for more details on the split system regulatory piece as regulations are still in flux.

5) Is Puron Advance more efficient than Puron?
   Puron Advance is a near drop-in in terms of performance compared to Puron, with very similar temperatures and pressures. While creating a better planet for tomorrow, Puron Advance systems will achieve similar efficiency across the board.

6) Will I need special certification to work with Puron Advance?
   As of today, the existing EPA 608 certification is still the only needed requirement for refrigerant handling, including R-454B. We highly recommend continuous education and training as a best practice for any field work. You can find thorough A2L refrigerant training on *MyLearningCenter.com*. And be sure to always check for any local requirements governed by municipalities in your area.

7) Does this refrigerant contain propane?
   No. There is absolutely zero propane gas in the new Puron Advance refrigerant.

8) Will I still be able to get Puron for my customers' existing equipment?
   Yes. Puron will continue to be available for existing installed equipment. Be aware however, the availability of Puron will be limited in the coming years as the phasedown of R-410A continues. With limited quantities, this will likely result in increased pressure on the cost of Puron.

9) What is the benefit of switching over to a Puron Advance system as soon as available?
   The benefit of switching over to a Puron Advance system, when available, would ensure the owner is not utilizing a system with a refrigerant that is being phased down. This is important when considering the life of the equipment and potential future repairs. As the phasedown continues, the availability and demand will drive to very costly repairs of R-410A equipment.

10) What is the benefit of switching over to selling Puron Advance systems as soon as possible?
    Based on the EPA's proposed sell-through of R-410A equipment, switching to R-454B equipment will help to ensure that all R-410A light commercial equipment is out of inventory so it does not have to be scrapped. Additionally, the dealer would help to ensure that their customers are up to code and help them avoid potentially expensive repair costs on older R-410A equipment.

11) Does the new refrigerant regulation apply to Canadian markets?
    At this time, decisions are pending for the Canadian market. Check back regularly to make sure you are up to date with the latest legislation from the Canadian government.

Installation/Service

12) How will the installation process change with a Puron Advance system?
Installation of a Puron Advance system will be quite similar to a Puron system. However, there are some field service practices that will become required where before they were recommended. See page 23 for a complete list of required procedures

13) Do I need to get a completely new set of tools in order to work with Puron Advance?
Not necessarily. If your tools are compatible with A2L refrigerants and are non-sparking, then you will be able to continue to use them. You will need to make sure you have separate charging hoses for each unique refrigerant type. If you are unsure, check with AHRI or your Bryant representative to learn more.

14) Will I be required to replace the evaporator coil or the fan coil, or can I just replace the outdoor unit with a Puron Advance unit?
A new Puron Advance indoor coil will be required when installing a new Puron Advance outdoor unit – due to the required dissipation system.

15) What are the requirements in order to reuse existing piping with Puron Advance?
The piping must meet standards, be the correct size and length for the system being installed, be clean, and pass a pressurized leak test.

16) Will charging a system with Puron Advance be different than one with Puron?
No. Fundamental charging practices will remain the same.

17) What all goes into the calculation of the total system charge during installation?
The total system charge is the sum of the lineset, indoor coils, and the outdoor unit - in other words any component that holds refrigerant.

18) Can I use the same charging hoses for Puron Advance that I used for Puron?
No. You should use a separate set of hoses for each unique refrigerant type to avoid any mixing of refrigerants.

19) Does the dissipation system come with the unit?
For light commercial rooftops, the dissipation control board will be installed in the return air section, with the sensor installed on the condensate drain pan. For light commercial split systems, the dissipation control board and refrigerant sensor will be installed in the indoor unit. Field wiring per the install instructions will allow the dissipation system to adequately control the unit.

20) Can I use the same recovery tanks for Puron Advance that I currently use for Puron?
No. It is important to avoid mixing the refrigerants so you must use separate tanks for each unique refrigerant type.

21) What if I accidentally connect a Puron cylinder to a Puron Advance system?
If this occurs, you will need to follow the proper evacuation procedure listed in the installation manual. To reduce the occurrence of this happening, the Puron Advance products will have a R-454B label near the service valves and a red indicator attached to the service valves per UL regulation.

22) How will I be able to tell the Puron Advance cylinders from the Puron ones?
The Puron Advance cylinders – while a similar green-gray color – will also have red stripe around the top as a clear visual distinction and left-hand threads.

23) Why is it important to reclaim Puron?
With the phasedown of HFC refrigerants, the availability and cost of the refrigerant will begin to change. If Puron is reclaimed it can be recycled and reused for service and repairs and is not restricted by the phasedown of this refrigerant.

24) At what pressures will the Puron Advance coils operate?
The pressures and temperatures of Puron Advance coils will operate similarly to Puron. The pressure for Puron Advance will be roughly 7% less than current Puron products. This has allowed us to utilize the same coils with changes to the TXV and dissipation system being the only necessary changes for performance.

25) What happens if the leak detection sensor fails?
If the dissipation system sensor fails, the control board will fail safe. This means that the unit will stay in dissipation mode not allowing the system to operate in heating or cooling until the sensor is replaced. This is the primary reason the sensors that we are installing have been tested for durability and longevity.

26) How can you tell if the leak detection sensor and/or dissipation system is working properly?
The dissipation system performs a self test every hour to determine functionality and displays a light on the board to indicate normal operation. If this self test fails, the unit will display an error LED and activate dissipation.

27) Will units with R-454B use the same oil as current units using R-410A?
Yes. Unlike with the transition from R-22 to R-410A, R-454B models will use the same oil as is currently used with R-410A models.

Safety

28) Why are you including a dissipation system on all products?

The decision to go with a consistent safety design across all of our products using Puron Advance provides you with the extra confidence that all our units have safety measures built-in. All Bryant light commercial products with Puron Advance ship with more than 3.9 pounds of refrigerant – meeting the UL m2 level requiring dissipation systems.

29) How can installers feel comfortable about their safety working with Puron Advance?

Closely following the required and recommended field service procedures is the first step in technician safety. Further, Bryant will be installing a leak dissipation system on all of our units, regardless of charge amount. This consistent safety design provides you with the extra confidence that all our units have built-in safety measures.

30) What does "flame speed" refer to?

Flame speed refers to the rate at which a flame spreads. Puron Advance has a very slow flame speed - less than half a mile per hour, which is a rate you out pace by casually walking.

31) How long will the blower motor run after a leak is detected to ensure dissipation?

Once the leak is no longer detected, the blower will run for an additional 15 minutes before allowing for a resumed heating or cooling demand call.

32) Are there any concerns for occupant safety with Puron Advance?

No. Occupants should not feel concerned about updating to a Puron Advance system. Bryant is committed to safety and reliability as evidenced by our rigorous testing protocols on all products. Plus, we have built a leak detection/dissipation system into each Puron Advance system for added safety.

33) Will customers need to purchase an additional type of detector to ensure their safety with this new refrigerant?

No. Bryant has put technician and occupant safety first when developing our new products with Puron Advance. We have built leak detection safety measures into each Puron Advance system.

34) Will occupants remain safe even when the HVAC system in their space has been turned off – i.e. during nice weather when the unit may be in economizer mode?

Yes. When the system is set to off, the leak detection system is still monitoring for any refrigerant leak and can override the thermostat to turn on the blower motor to mitigate the leak.

Where to Go for More Information

HVAC PARTNERS

LAUNCH MATERIALS

Visit *HVACpartners.com* for access to the Puron Advance launch page where you will find a link to order more of these kits as well as links to additional marketing support materials.

Go to: *HVACpartners > Marketing > Dashboards & Portals > Bryant Puron Advance Light Commercial Dashboard*

CONTENT INCLUDES:

- Launch Kit PDF
- Brochures
- Product Presentations
- Videos

MERCHANDISING MATERIALS

Visit HVACpartners to access a variety of Puron Advance merchandising material.

Go to: *HVACpartners > Marketing > Marketing Your Business > Marketing Merchandise*

CONTENT INCLUDES:

- Banner Stands
- Branded Apparel
- Vehicle Graphics

[MY] Learning Center

TRAINING

Visit *MLCtraining.com* and search Puron Advance in the Online course catalog and video section to access available training.

Notes

bryant

Heating & Cooling Systems

04-801-90013
5/1/2024

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