

Frequently Asked Questions – TruTech Tools

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Any questions that cannot be easily answered by this FAQ can be referred to the Bluon Tech Support hotline at 866.559.1777 (for installation, equipment related or technical questions) or the Bluon Sales Team at 855.425.8686 x3.

TdX 20 History

What is Bluon TdX 20 (R-458A)?

Bluon is **the** R-22 replacement solution! Bluon TdX 20 (R-458a) is a breakthrough refrigerant that increases performance of R-22 HVAC systems in both commercial and residential applications. Bluon TdX 20 has the following benefits:

- Increased efficiency compared to R-22 (5%-10% for smaller systems & 15%-25% for larger systems)
- Virtually identical capacity compared to R-22 (in many cases, capacity increases)
- No oil change EVER required (compatible with MO and POE oil)
- Extended equipment life due to lower operating pressures and reduced head temps
- ASHRAE & EPA approved, FAR compliant for Federal buildings and warranty protected

In addition to the product itself, Bluon also has REAL technician support with a 24/7/365 hotline, a training course and the innovative Bluon Mobile App. Great refrigerant + awesome app + killer tech support = complete R-22 solution.

What is the composition of Bluon TdX 20?

Bluon TdX 20 (R-458a) is a proprietary blend of 5 HFC refrigerants R-32, R-125, R-134a, R-227ea, R-236fa and a proprietary lubricant additive to enable miscibility with Mineral Oil.

Is Bluon TdX 20 (R-458A) EPA SNAP approved?

Yes. Bluon TdX 20 is fully EPA approved (Federal Register, Vol. 82, No. 139).

Has TdX 20 received an “R” designation from ASHRAE?

Yes, and is designated R-458A. The American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) with the consensus of American National Standards Institute (ANSI) has designated Bluon Energy’s TdX 20 refrigerant as an approved standard to Refrigerant Blends under Standard 34-2013. TdX 20 has been given the designation of R-458A. R-458A was approved by the ASHRAE Standards Committee on June 26, 2016; by the ASHRAE Board of Directors on June 29, 2016; and by the American National Standard Institute on July 27, 2016. The designation can be found on the ASHRAE website as Addendum aj to Standard 34-2013.

Does TdX 20 meet AHRI standards?

Yes, the production of Bluon TdX 20 meets the AHRI 700 Standard for refrigerants. AHRI certification programs only test and certify HVAC-R equipment performance. In addition, Bluon TdX 20 is manufactured to the highest quality and tightest tolerances in the industry.

What is the flammability rating for TdX 20?

Bluon TdX 20 has an ASHRAE safety group classification of A1, non-flammable and low toxicity.

What is the GWP of Bluon TdX 20?

Bluon TdX 20's GWP is 1,564 – the lowest of all R-22 replacement refrigerants for use in high temp. applications (HVAC).

Is TdX 20 patented?

Yes, Bluon TdX 20 is a patented formula through 2030+.

Contractor Support

What support does Bluon offer for contractors?

Bluon offers real technician support with the following:

- The Bluon Mobile App with a database of 20,000 HVAC units
 - Individual Installation instructions for all 20,000 units
- Comprehensive contractor training on blends and TdX 20 both online and in-person.
- 24/7/365 live technician support staffed by expert technicians

What features does the Bluon App have?

App includes:

- Original manuals and documentation for over 20,000 units searchable by model number.
- Individualized retrofit instructions.
- Best practices and videos for common procedures.
- Calculators and tools for the installation.
- MeasureQuick charging & diagnostic integration coming soon!

App available to Accredited Technicians.

What training does Bluon offer?

Bluon offers a Tier I Accreditation for systems of 20 tons or less. Bluon also offers a Tier II Accreditation for systems greater than 20 tons.

Tier I Accreditation (systems under 20 tons) – Training is available at no cost on the Bluon Mobile App (download on the Apple App Store or Google Play) and is a 20 min. video course on blends and Bluon TdX 20. After completing this training, contractors have access to the full functionality of the Bluon Mobile App, our 24/7/365 technician support and warranty protection for systems of 20 tons and less. In-person group trainings are also available at no cost to contractors for 10+ technicians.

Tier II Accreditation (systems over 20 tons) – To become Tier II Accredited, Bluon and the mechanical contractor complete one or more real paying jobs together, while Bluon takes all the risk. Tier II Accredited Contractors get warranty protection on systems greater than twenty tons. Contractors interested in a Tier II Accreditation and installation can call 855.425.8686 x 3 to speak with the sales team.

Does Bluon offer technical support for Bluon TdX 20 (R-458A)?

Yes. Bluon is the only refrigerant manufacturer that provides an entire ecosystem of support for our Accredited Technicians, including 24/7/365 live technician support staffed by real veterans of the HVAC industry with wait times of less than two minutes. The technician support number is 866.559.1777.

Does Bluon offer help bidding jobs?

Yes. Bluon can help contractors bid jobs and craft proposals to give to their customers. Call Sales 855.425.8686 x3

Oil

Is Bluon TdX 20 (R-458A) compatible with mineral oil?

Bluon TdX 20 utilizes a proprietary lubricant additive to enable HFC miscibility with MO. Most other replacements use small amounts of hydrocarbons to enable very limited miscibility with MO or require an oil change to POE, which is time consuming and challenging to complete.

Will I experience oil carry issues with Bluon TdX 20 (R-458A)?

Bluon TdX 20 was designed to have similar miscibility characteristics to R-22. Systems properly piped to industry standards and without historical oil carry issues with R-22 should not have oil carry issues with Bluon TdX 20. Bluon will not FIX or CURE any existing oil carry problems.

Do I need to change the oil or add 20% POE?

Bluon TdX 20 was designed to have similar oil carry and immiscibility characteristics of R-22 and mineral oil. It is fully compatible with MO and POE oil. Systems with proper refrigerant piping should need not require alterations.

Capacity

How does TdX 20 perform from a capacity standpoint?

TdX 20 delivers virtually identical capacity to R-22 as demonstrated in extensive field testing and third-party independent testing. Other R-22 replacement refrigerants make claims of comparable or “similar” capacity; however extensive tests and HVAC market feedback indicate they simply don’t perform at R-22 levels **and** they consume more electricity than R-22.

Price

Why does Bluon TdX 20 (R-458A) cost slightly more than some other R-22 replacements?

Very simple: Bluon comes with full support 24/7 and offers a value prop to you + your customers

Bluon has two primary value propositions:

1. Bluon is the only refrigerant manufacturer to offer comprehensive support to contractors. This includes our Bluon Mobile app, live technician support and training. Bluon makes retrofitting R-22 units possible with our conversion protocols for virtually all R-22 units.
2. Bluon TdX 20 (R-458A) is the only R-22 replacement that is more energy efficient than R-22 and therefore creates a return on investment for the end user. It should also be noted that installing Bluon is approx. 1/20th of the cost of buying new equipment.

TdX 20 vs. Other Replacements

How is Bluon TdX 20 different from other R-22 Replacements?

No other R-22 Replacement offers support. Bluon TdX 20 is the only R-22 replacement that is a complete solution for technicians and end-users alike. Bluon is more energy efficient than R-22 with virtually identical capacity; Bluon TdX 20 is fully compatible with MO and never requires an oil change, Bluon has a lower GWP than any other replacement on the market and perhaps most importantly offers industry-first, comprehensive support for technicians.

How is Bluon TdX 20 different than NU22 (R-422B)?

Bluon TdX 20 has significantly better capacity than NU22, is more energy efficient, and is truly compatible with MO. TdX 20 has a GWP of 1,564 compared to NU22’s GWP of 2,290. NU22 is known to fail at high outside ambient due to its low critical temperature. It also causes significantly higher compressor head temps. R-422B is made from primarily R-125 and R-134a.

How is Bluon TdX 20 different than R-422D?

Bluon TdX 20 has significantly better capacity than R-422D, is more energy efficient, and is truly compatible with MO. TdX 20 has a GWP of 1,564 compared to R-422D’s GWP of 2,500+. R-422D is

known to fail at high outside ambient due to its low critical temperature. It also causes significantly higher compressor head temps. R-422D is made from primarily R-125 and R-134a. NOTE: R-422D is even worse than NU22, as it has more R-125 (a terrible heat carrier).

How is Bluon TdX 20 different than MO99 (R-438A)?

Bluon TdX 20 is substantially more energy efficient than MO99, has slightly better capacity, and offers true compatibility with MO. TdX 20 has a GWP of 1,564 compared to MO99's GWP of 2,059. MO99 is known to run very high head pressures and very hot compressor temperatures.

How is Bluon TdX 20 different than R-407C?

Bluon TdX 20 has similar capacity to R-407C, increased energy efficiency, and most importantly does NOT require an oil change for MO systems. TdX 20 has a GWP of 1,564 compared to R-407C's GWP of 1,624. R-407C runs at much higher head pressures than Bluon TdX 20. R-407C is also off patent, causing the quality of the product to vary widely depending on the manufacturer and their tolerances.

How is Bluon TdX 20 different than R-427A?

Bluon TdX 20 has significantly better capacity than R-427A, is much more energy-efficient, and is truly compatible with MO. TdX 20 has a GWP of 1,564 compared to R-427A's GWP of 2,024.

How is Bluon TdX 20 different than R-421A?

Bluon TdX 20 has significantly better capacity than R-421A, and is much more energy efficient. TdX 20 has a GWP of 1,564 compared to R-421A's GWP of 2,400+.

How is Bluon TdX 20 different than RS-44B (R-453A)? (also known RS-70)

Bluon TdX 20 has slightly better capacity than RS-44B, increased energy efficiency, and most importantly is designed for full compatibility with Mineral Oil. RS-44B only offers partial compatibility with MO. Bluon TdX 20 has a GWP of 1,564 compared to R-453A's GWP of 1,630.

Also, R-453A is not currently EPA SNAP approved for use in HVAC applications.

Installation

What are the typical operating pressures of Bluon TdX 20 (R-458A)?

Bluon TdX 20 typically runs at 50 psi on the suction line and 185-210 psi on the discharge side.

Will I need to make any changes to my equipment or infrastructure to use TdX 20?

While Bluon acknowledges there is no perfect "drop-in" replacement, TdX 20 is a direct replacement for R-22 refrigerant in the vast majority of standard HVAC equipment (direct expansion package and split systems). Bluon does recommend component change-outs for certain types of larger and more complex systems. Look up individual units by model number to clearly see if system modifications are needed and contact our Live Technician Support Hotline at 866.559.1777.

Will I need to adjust the TXV when installing Bluon TdX 20?

Yes, typically TXV's should be adjusted 1-4 turns clockwise to obtain the correct spring tension to create the desired Superheat when installing Bluon TdX 20.

What should the starting charge be?

Initial charge should be 80% of nameplate or amount of refrigerant that was recovered (whichever is less). If unsure about the original charge or appropriate starting charge, it is generally better to start lower and slowly work towards desired Superheat for fixed metering devices and desired Subcool for adjustable metering devices. The motto for charging is: Start low and go slow! See Bluon Accreditation Videos on the App for full charging instructions.

Will Non-Adjustable TXVs need to be replaced?

In units 5 tons and under, charge to OEM recommended Superheat. In units over 5 tons, the non-adjustable valve can be converted or changed when possible to an adjustable valve to increase system performance. Call Bluon Technical Support for more info.

Will TXV's ever need to be changed or replaced?

In some larger, complex systems, under specific circumstances, Bluon may recommend transitioning to an Electronic Expansion Valve for safety and efficiency benefits. Please see the Bluon Mobile App and corresponding Model # in question and call Bluon Technician support.

Is Bluon TdX 20 compatible with leak repair/sealant additives?

Bluon TdX 20 is an HFC blend. As long as the sealant manufacturer approves use with HFC's then there should be no compatibility issues. Most leak sealant manufacturers say they are compatible with all refrigerant types. Bluon does not recommend leak sealants over repairing leaks.

Can Bluon TdX 20 be used with screw, recip. and scroll compressors?

Yes, Bluon has taken the time to understand systems of this type and has developed proven protocols specifically for these systems. Using these protocols, Bluon TdX 20 can be safely installed in Trane® IntelliPaks™, Voyagers™ and WeatherMakers™ as well as other systems with screw, recip., scroll and Trane 3-D® Scroll compressors. Note, installing Bluon in systems of greater than 20 tons requires a Tier II Accreditation to get warranty coverage. See contractor support section for more information on Tier II Accreditations and call Bluon Technician Support.

In what systems is Bluon TdX 20 not compatible?

Blends are not recommended for flooded evaporators or centrifugal compressors. Additionally, systems containing receivers or lead temps may require special consideration when using blends. Systems that are not compatible with Bluon TdX 20 are clearly marked in the Bluon Mobile App by model #.

Should seals and gaskets be replaced when converting to Bluon TdX 20?

Converting to Bluon TdX 20 (R-458A) does not require pro-actively changing seals and gaskets. Always follow industry standard practices for leak checking (e.g. standing pressure and evacuation tests) to ensure a tight and dry system.

Can I “top-off” an R-22 system with Bluon TdX 20?

No. Refrigerants should never be mixed as it is against EPA regulations. The system must be evacuated and clean before installing Bluon TdX 20.

If I have a leak with Bluon TdX 20, should I recover and replace the refrigerant?

Bluon recommends following the industry standard “20% Rule” for blends – if the system loses more than 20% of the original charge from the vapor side, then the system should be evacuated, and the refrigerant replaced with a virgin charge. If the leak was on the liquid line, the refrigerant charge should be ok to “top-off”.

What Superheat and Subcool numbers should I aim for when charging with Bluon TdX 20?

Bluon recommends using OEM recommendations but as a general rule the Subcool should be between 8-12 F and the Superheat should be between 12-20 F at the compressor.

Will I have to change out electronic expansion valves when converting to Bluon TdX 20?

Electronic expansion valves (EEVs) will need to be set to the Bluon TdX 20 (R-458A) profile which is included in all major software. Systems with EEV’s will likely require a Bluon Tier II Accreditation for warranty coverage. Contact Bluon Technical Support for more info.

Is Bluon TdX 20 (R-458A) recommended for use in low temp systems?

No, Bluon TdX 20 (R-458A) is only recommended for use in high and medium temp. applications.

Energy Savings

What performance can end users expect from Bluon TdX 20?

They can expect a 5% – 25% energy savings with like capacity. Typically, In 5%-10% for smaller systems and 15%-25% for larger systems. Larger systems with adjustable metering devices see great energy savings.

How does TdX 20 reduce energy consumption?

TdX 20 works with existing HVAC equipment and compressor to increase heat transfer in the coil, while reducing the operating pressure to reduce energy consumption by 5% to 25% compared to R-22. TdX 20 creates these energy savings through reduced amp raw to the compressor and reduced system run time.

What is the estimated payback or ROI for installing TdX 20?

While energy savings and electricity costs can vary, the payback for installing TdX 20 is typically

between 12-40 months with an ROI of 30%-100%.

How does TdX 20 compare to other energy efficiency measures (EEMs)?

TdX 20 represents one of the most cost-effective EEMs available today. TdX ranks in the top 5% of all EEMs as measured by the Department of Energy's method of determining the cost per kWh saved.

How does Bluon TdX 20 impact an end-user's carbon footprint?

Replacing R-22 with Bluon TdX 20 is one of the most impactful and cost-effective measures anyone can do to lower their Carbon Footprint. For a 100,000 SF office building, converting to Bluon TdX 20 can save over 100 metric tons of CO₂ per year.

Commercial Real Estate End-Users

Does Bluon offer any installation services?

Yes, Bluon offers a turnkey installation service for corporate clients focused on retrofitting their R-22 with Bluon TdX 20 and optimizing the system for maximum performance and longevity. Bluon will lead the project and work with in-house technicians or third-party contractors to convert the units. Contact the Bluon Sales Team for more information at 855.425.8686 x3 or send an email to info@bluonenergy.com.