

TYCO® LFP® Antifreeze and LFP® Antifreeze+

Frequently Asked Questions

February 2021

UL Certification, Listing & Testing

Q. What is the difference between UL Certified and UL Listed?

- A. Per UL, the new UL Certification mark will, over time, replace the UL Listed mark and during the transition the two marks should be viewed as interchangeable and should be accepted as an indication of certification. Tyco LFP® Antifreeze and LFP® Antifreeze+ are UL Certified and UL Listed for use in fire sprinkler systems.
- <https://www.ul.com/marks/>
 - <https://www.ul.com/newsroom/pressreleases/ul-launches-enhanced-certification-mark-and-badge-system/>

Q. Are these products ULc Certified/ULc Listed for use in Canada?

- A. There is not a published UL document with specific Canadian requirements for antifreeze to achieve separate ULc Certification/ULc Listing. In this case, UL Certification/UL Listed is generally recognized for both Canadian and US markets.

Q. What performance metrics are included in the UL 2901 test protocol for antifreeze?

- A. The following criteria are tested as part of UL 2901:
- Characterization Tests
 - High Ambient Temperature Stability
 - Temperature Cycling Stability
 - Electrical Conductivity
 - Corrosion Rate
 - Pit Depth Corrosion
 - Exposure to Elastomeric Materials
 - Stress Corrosion
 - Impact of Galvanic Action
 - Compatibility with Polymeric Materials
 - Compatibility with Organic Coatings
 - Toxicity
 - Exposure to Fire
 - Fire Fighting Effectiveness
 - Viscosity at Temperature Limitations
 - Resistance to Leakage

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Q. How did LFP® Antifreeze and LFP® Antifreeze+ perform against the UL 2901 test protocol?

- A. Products either pass or fail each test and must pass all tests in the protocol in order to receive UL Certification/UL Listing. LFP® Antifreeze products have passed all tests in the UL 2901 test protocol, deeming it safe for use in fire sprinkler systems when used as specified in the product technical data sheet.

Q. Do LFP® Antifreeze products address the prior issues in past incidents?

- A. The UL 2901 test protocol was designed to address life safety issues associated with antifreeze use. LFP® Antifreeze products have passed the test protocol and received UL Certification/UL Listed for use in fire sprinkler systems.

Product Attributes

Q. What is the firefighting effectiveness of LFP® Antifreeze products vs. water?

- A. LFP® Antifreeze products have demonstrated compliance with UL Certification/ UL Listing requirements in rigorous fire testing when tested to the same criteria as water.

Q. What if the contractor is working on a system that has unlisted antifreeze?

- A. Johnson Controls recommends that the system be drained, flushed, and replaced with Tyco LFP® Antifreeze or Tyco LFP® Antifreeze+. The final recommendation would come from the local AHJ. Although National Fire Protection Association (NFPA) standards do not require a system change out until 2022, in order to mitigate risk exposure, Johnson Controls recommends that systems are changed out as soon as possible. Additionally, if an existing system is tested and the antifreeze does not pass, the standard requires that it be replaced.

Q. Are LFP® Antifreeze Products listed for use with galvanized pipe?

- A. No. At this time, LFP® Antifreeze products are not listed for use with galvanized pipe.

Q. What happens if the product is installed and temperatures go below the minimum use temperature listed in Tyco LFP® Antifreeze technical datasheets?

- A. The minimum use temperature for Tyco LFP® Antifreeze is -10°F (-23.3°C) and for Tyco LFP® Antifreeze+ is -25°F (-32°C). If solution temperatures drop below the specified minimum use temperature the sprinkler system might not operate as intended due to the potential presence of ice crystals should a sprinkler be activated. Johnson Controls is continuing to perform testing to determine the temperature at which the solution and water freeze and expand enough that damage might occur to the piping system. If prolonged exposure to ambient temperatures below the minimum use temperature is possible, Johnson Controls recommends installing a dry system to help avoid potential pipe damage.

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Q. Why are LFP® Antifreeze products recommended to be stored at a minimum temperature of 40°F (4°C)?

A. In an effort to reduce possible risk of degradation during storage, we recommend storing the antifreeze at a minimum ambient temperature of 40°F (4°C).

Q. What are the product ingredients?

A. Tyco LFP® Antifreeze and LFP® Antifreeze+ are glycerin-based, patented and proprietary formulations. These formulations follow NFPA guidelines for maximum concentrations of glycerin and has received UL Certification/UL Listing after passing UL 2901 testing protocol. Safety Data Sheets are available at www.tyco-fire.com.

Q. Do LFP® Antifreeze or LFP® Antifreeze+ contribute to corrosion?

A. LFP® Antifreeze has passed all of the UL 2901 corrosion tests. In fact, some of the test data has indicated that the product could have some anti-corrosive properties and perform better than some types of water alone.

Q. How do you test the antifreeze to make sure it's still acceptable for use?

A. NFPA 25 calls for an annual test of antifreeze systems. Johnson Controls additionally recommends testing LFP® Antifreeze after it is installed into the piping system. The solution can be tested with a refractometer (refractive index) and/or a hydrometer (specific gravity). If either of these values fall outside of the acceptable value range listed in the technical data sheet, the product should be replaced.

Q. Do I have to install an expansion tank for use with antifreeze?

A. An expansion tank is not required. However, provisions must be made to accommodate for changes in LFP® Antifreeze volume due to temperature changes to prevent over-pressurization of the fire sprinkler system. Piping and equipment configurations as shown in NFPA 13, 13R and 13D must be followed. Always refer to the code and technical data sheet for the most up-to-date requirements.

Q. Is system capacity limited by volume when using listed antifreezes in accordance with the UL Listing?

A. UL has set volume limitations for each Occupancy Hazard Classification as defined by NFPA, these volume limitations apply to all antifreezes listed in accordance with UL2901, including Tyco LFP® Antifreezes.

- For use in Residential fire sprinkler systems in accordance with NFPA 13R and 13D, limited to a maximum volume of 500 gallons per riser.
- For use in Commercial fire sprinkler systems in accordance with NFPA 13 Light Hazard applications, limited to 200 gallons using NFPA 13 design rules, or up to 500 gallons when using the dry system hydraulic design criteria of NFPA 13.

Answer continued on the following page.

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- For use in NFPA 13 Ordinary Hazard Groups 1 and 2 and NFPA 13 Storage applications limited to 40 gallons per riser.
- For mixed use occupancies served by a single riser, the most restrictive rule as detailed above shall apply.
- Recent fire testing has been successfully complete by UL and LFP® Antifreezes may be used in Combustible Concealed Space light hazard occupancies where it has been specifically tested with Tyco CC3 sprinklers and listed with no volume limitation.

If you have further questions about volume limits or other design questions, please contact our Technical Services Team by email (TechServ@jci.com) or phone (1-800-381-9312).

Q. What special equipment does my customer need to install and maintain an antifreeze system?

A. A transfer pump, refractometer and/or hydrometer are required for installation.

Q. What type of refractometer is required to test product and system levels?

A. Our TDS recommends the use of a Fisher Scientific refractometer that measures the refractive index. Please consult the TDS for more information. Overall, a refractometer that measures with the standard Brix scale and at least the scale range Brix 0.0% to 68.9%; Refractive Index 1.3330nD to 1.5177nD (or wider range) is required.

Product Orders & Distribution

Q. Are these products distributed outside of North America?

A. At this time (February 2021) Tyco LFP® Antifreeze products are only available in the United States and Canada.

Q. Who manufactures the product?

A. LFP® Antifreeze and LFP® Antifreeze+ are manufactured by a long-standing Johnson Controls supplier with ISO 9001 certification.

Q. Are there any HAZMAT requirements pertaining to the transportation of LFP® Antifreeze products?

A. There are no requirements on the transportation of LFP® Antifreeze products. Review the [Safety Data Sheets](#) for details.

Q. What are the list prices of LFP® Antifreeze products?

A. Please consult the current price book.

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Q. What are the LFP® Antifreeze product part numbers?

A. There are four part numbers for LFP® Antifreeze products

LFP® Antifreeze+

- 54033: 5 Gallon Pail
- 54034: 30 Gallon Drum

LFP® Antifreeze

- 53028: 5 Gallon Pail
- 52029: 30 Gallon Drum

Q. Can customers return the product if they find out they don't need it or buy too much?

A. No, Johnson Controls does not accept product returns for antifreeze for reasons other than product quality or shipping damage.

Q. What is the return process for damaged product?

A. Customers should follow our standard return policy ([terms of sale can be viewed here](#)) and contact Customer Service if:

- The product does not test at the correct levels upon arrival
- The product is damaged due to shipping

Q. LFP® Antifreeze products are only sold by the pallet through Johnson Controls. How can I purchase in lower quantities?

A. Quantities smaller than a pallet can be purchased through local distribution centers. Contact your local Johnson Controls representative or customer service if you need assistance in identifying a distributor.

Q. What is the lead time from order placement?

A. Lead time is typically about three weeks from order placement to delivery with the expectation that it will typically be shorter depending on order size and shipping location. Seasonal demand may have an impact on lead times.

Q. What are the shipping options for customers who want to order LFP® Antifreeze products?

A. For orders placed to be delivered in the US or Canada; customers simply place an order and the best, most economic shipping method will be used by our supplier to ship products to the customer. Our supplier has provided some freight cost estimates broken out by 'zone' shipping from their location in Wisconsin. Customer service has these estimates available if customers want an estimate.