

### 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 is 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. Is this product ULc Certified/ULc Listed for use in Canada?

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

#### 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

#### Q. How did 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 Listed. LFP® antifreeze 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. Does LFP® Antifreeze 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 has 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 vs. water?**

- A. LFP<sup>®M</sup> Antifreeze has 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. 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. Is LFP® listed with galvanized pipe?**

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

**Q. What happens if the product is installed and temperatures go below -10° F (-23,3° C)?**

- A. The minimum use temperature for the solution is -10° F (-23,3° C). If solution temperatures drop below -10° F (-23,3° C) 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.

**Q. Why is LFP® Antifreeze 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).

# TYCO® LFP® Antifreeze

## FREQUENTLY ASKED QUESTIONS

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### **Q. What are the product ingredients?**

A. Tyco LFP® Antifreeze is a glycerin-based, patented and proprietary formulation. The formulation follows 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 [tyco-fire.com](http://tyco-fire.com).

### **Q. Does 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 both before and 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. Why is LFP® Antifreeze system capacity limit 40 gallons on a NFPA 13 compliant system?**

A. For use in Residential fire sprinkler systems in accordance with NFPA 13R and 13D, there no limit as to the size of the system when using LFP Antifreeze. UL has set the requirement for certification at a 40 gallon limit within the UL 2901 protocol when used in light and ordinary hazard occupancies as well as storage applications, which is the guidance given in the Technical Data Sheet. Recent fire testing has been successfully complete by UL and LFP Antifreeze may be used in Combustible Space light hazard occupancies where it has been specifically tested and listed with no volume limitation.

### **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. Is the product distributed outside of North America?**

A. At this time (January 2019) the product is only available in the United States and Canada.

**Q. Who manufactures the product?**

A. LFP® Antifreeze is 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?**

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

**Q. What is the list price of LFP® Antifreeze?**

A. Please consult the current price book.

**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 is 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 currently three weeks from order placement to delivery with the expectation that it will typically be shorter depending on order size and shipping location.

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

A. There are two shipping options for orders placed to be delivered in the US or Canada.

1. Customers simply place an order and the best, most economic ship 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.
2. Customers can arrange their own freight and schedule a pickup. Customer service has instructions to do this – note: the instructions are different depending on whether the order is for 5 gallon pails or 30 gallon drums (2 different pickup locations)