FireFighter - How Long?

The question is often asked, "What is the life expectancy of your FireFighter PG30 and PG38 antifreeze?" To answer this we have to look at what causes FireFighter PG 30 and PG38 to breakdown and fail.

Factors which shorten fluid life:

Heat - The life of the fluid is effected by higher than ambient temperatures and the period of time the fluid stays at these temperatures.

Water - The invasion of water into the solution causing the freeze temperature to change.

Oxygen - Water and oxygen creates corrosion of ferrous metals (rust).

Acid Contamination - Certain bacteria use glycol as a food source. The waste product of their bacteria is acidic.

The breakdown of propylene glycol by heat to a length of time is difficult to gage or monitor. When glycol is broken down by heat, it becomes acidic. To counteract this FireFighter PG30 and PG38 has an inhibitor that works as a buffer against this acid.

The quality of water available from municipal water facilities or wells has a varying degree of hardness, much of it containing high levels of calcium and magnesium. This hard water will deplete the inhibitor, accelerating corrosion in the system. By themselves, chlorides and the sulfates found in water will cause pitting and corrosion of metal surfaces. Most water by itself has a higher corrosion rate than properly maintained FireFighter PG30 and PG38. This is why we use deionized water.

The acid caused by bacteria should not be a problem if the system was initially filled with FireFighter PG30 and PG38. The inhibitor that is used FireFighter PG30 and PG38 creates an environment that is not favorable to facultative bacteria. If bacteria already reside in the system the inhibitor works as a buffer against the acidity.

It's impossible to keep oxygen out of the system. This is one of the reasons inhibitor package is used in FireFighter PG30 and PG38 to help prevent corrosion of ferrous metals.

So, to answer the question "What is the life expectancy of FireFighter PG30 and PG38 antifreeze?" the answer is Testing and Maintenance. The fluid should be tested for the desired freeze temperature and proper pH on at least a yearly basis. If both the freeze point and pH are satisfactory, and the fluid doesn't have other contaminants, FireFighter PG30 and PG38 should give many years of protection.

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