

NEWS RELEASES

NFPA Standards Council bans use of antifreeze in sprinkler systems for new residential construction

NFPA issues updated safety alert regarding antifreeze in new and existing residential sprinkler systems

August 18, 2010 – The [National Fire Protection Association](#) (NFPA) Standards Council has banned the use of antifreeze solution in residential fire sprinkler systems for new construction until further action by NFPA consensus standards committees, and [NFPA has issued a follow-up to its July 2010 safety alert](#) to provide updated guidance on the use of antifreeze in residential fire sprinkler systems. The council action and updated alert follow new research that was conducted after a fire incident raised concerns about antifreeze solutions in residential fire sprinkler systems. The incident involved a grease fire in a kitchen where a sprinkler with a high concentration of antifreeze deployed. The fire resulted in a single fatality and serious injury to another person.

“Fire sprinklers are one of the most effective ways to save lives and property from fire,” said James M. Shannon, president of NFPA. “We have acted quickly to conduct additional research in order to provide the public and our technical committees with as much information as possible regarding the use of antifreeze in sprinkler systems.”

According to NFPA, the home is the place where most fire fatalities occur, and when sprinklers are present, the risk of dying in a home fire decreases by 83%.

Shannon said the key findings from the new report were:

- Antifreeze solutions with concentrations of propylene glycol exceeding 40% and concentrations of glycerin exceeding 50% have the potential to ignite when discharged through automatic sprinklers.
- Both the 40% propylene glycol and 50% glycerin solutions demonstrated similar performance to that of water alone for fire control throughout the series of tests.
- Based on the results of this research, antifreeze solutions of propylene glycol exceeding 40% and glycerin exceeding 50% are not appropriate for use in residential fire sprinkler systems.
- Consideration should be given to reducing the acceptable concentrations of these antifreeze solutions by an appropriate safety factor.

New Systems

NFPA standards prohibit the use of antifreeze in residential fire sprinkler systems in new construction following the August 16, 2010 issuance of tentative interim amendments (TIA) to NFPA [13](#), [13D](#) and [13R](#). If you are putting in a new residential fire sprinkler system (including all NFPA 13D applications and the dwelling unit portions of NFPA 13 and NFPA 13R systems), refer to the latest editions of NFPA 13, 13D and 13R, as amended by TIA numbers 1000, 995, and 994.

Existing Systems

- Fire sprinklers are extremely effective fire protection devices, significantly reducing deaths, injuries and property loss from fire. These systems should not be disconnected.
- Residential fire sprinkler systems, whenever possible, should not contain an antifreeze solution.
- If you have, or are responsible for, an existing residential occupancy with a fire sprinkler system, contact a sprinkler contractor to check and see if there is antifreeze solution in the system.
- If there is antifreeze solution in the system, determine if other means, such as insulation, can be used to provide adequate freeze protection.
- If there is no viable alternative to antifreeze solutions, NFPA recommends the following:
 - Use only propylene glycol or glycerin antifreeze solution.
 - The antifreeze solution should be the lowest possible concentration required for the needed freeze potential but under no circumstance should the antifreeze solution exceed a **maximum** concentration of 40% of propylene glycol or a **maximum** concentration of 50% of glycerin. Consideration should be given to reducing these concentrations by an additional safety factor.
 - The antifreeze solution should only be a factory pre-mixed; use of factory pre-mixed solutions is essential to ensure the proper concentration level and solution integrity.
 - Antifreeze solutions should only be used with the approval of the local authority having jurisdiction.

The full NFPA Safety Alert Regarding Antifreeze in Residential Sprinkler Systems and more information on this topic can be found at <http://www.nfpa.org/antifreeze>.

About the National Fire Protection Association (NFPA)

NFPA is a worldwide leader in providing fire, electrical, building, and life safety to the public since 1896. The mission of the international nonprofit organization is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education.

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