



The National Fire Protection Association (NFPA) has recently released information regarding a potential hazard that may exist in limited circumstances with antifreeze solutions used in residential sprinkler systems.

These circumstances require an abnormally high concentration of antifreeze, the use of a sprinkler head producing a fine droplet size, such as a residential sprinkler, and a high water system operating pressure.

Through a recent series of tests conducted under NFPA's auspices, antifreeze solutions with concentrations of propylene glycol exceeding 40% and concentrations of glycerin exceeding 50% have been found to have the potential to ignite when discharged through automatic sprinklers.

Solutions of both 40% propylene glycol and 50% glycerin however, have demonstrated similar performance to that of water alone for fire control in these same 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.

If the residential sprinkler system uses CPVC piping, only glycerin is permitted to be used as the propylene glycol is not chemically compatible with the CPVC piping.

The Nevada State Fire Marshal wants to remind everyone that:

- 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 sprinklers, whenever practical, 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 high concentration level of antifreeze solution in the system.
- If there is antifreeze solution exceeding 50% glycerin or 40% propylene glycol in the system, determine if other means, such as dilution of the concentration to acceptable levels, increased building insulation, or installation of permanent, year-round heating systems can be used to provide adequate freeze protection.

If there is no viable alternative to antifreeze solutions, NFPA is currently recommending the following:

- Use only propylene glycol or glycerin antifreeze solution. Other antifreeze solutions are not approved for connection to a potable water source and have not been tested for their ignitability.
- 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 solution; 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 State of Nevada has currently adopted the 2002 editions of NFPA 13, 13D and 13R as the design and installation standards for automatic sprinkler protection. Current, pending rulemaking will bring the minimum design and installation standards for all three documents up to the 2010 edition. Note that any Tentative Interim Amendments published by NFPA are not effective within the state as they have not been processed through the state rulemaking process.