

NFPA Safety Alert Regarding Antifreeze in Residential Sprinklers

Background

Automatic fire sprinkler systems with antifreeze solutions have more than 60 years of successful use in commercial applications and an equally successful experience since they have been in use in residential applications. The home is the place where most fire fatalities occur, and when home sprinklers are present, the risk of dying in a home fire decreases by 83%. NFPA supports and urges the expanded use of residential sprinklers as the most effective way to prevent fire injury and death in the home and other residential occupancies.

While NFPA emphasizes that residential sprinklers are and remain reliable and effective, a recent fire incident involving a sprinkler system that contained a high concentration antifreeze solution, has raised concerns surrounding the combustibility of antifreeze solutions in residential sprinkler systems. The incident involved a grease fire in a kitchen where a sprinkler system with a reported 71.2% concentration of antifreeze deployed. The fire resulted in a single fatality and serious injury to another person.

Following this incident, NFPA initiated a research project with the Fire Protection Research Foundation and an initial set of fire tests were also conducted. Based on information learned from these efforts, NFPA is issuing this interim safety alert and recommendations (box at right) and has initiated additional fire tests to gain further information on antifreeze solution performance under various fire scenarios.

NFPA expects to provide additional guidance on antifreeze solutions before the cold weather months.

Key Findings of Initial Research fire tests

Based on testing conducted, 70/30% glycerin and 60/40% propylene glycol antifreeze solutions may provide an unacceptable risk of harm to occupants in certain types of fire scenarios, in particular kitchen grease fires. There were successful tests where kitchen grease fires were extinguished or contained with a 50/50 % glycerin solution but NFPA felt there should be additional testing to more fully understand if there is a risk associated with 50/50% glycerin solution.

Important safety information and NFPA guidance regarding antifreeze in residential fire sprinklers

Fire sprinklers are extremely effective fire protection devices, significantly reducing deaths, injuries and property loss from fire.

These systems should not be disconnected. Until the results of further testing on antifreeze are available, NFPA recommends the following:

- If you have, or are responsible for, a 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 an antifreeze solution in the system, as an interim measure, drain the system and replace it with water only. Problems associated with freezing of sprinkler pipes can be mitigated by alternative measures such as insulation. NFPA hopes to provide further guidance based on additional testing before the winter freezing months.
- If you are putting in a new residential sprinkler system, design and install a system that does not require an antifreeze solution.

Basic Fire Safety Tips to Prevent Kitchen Fires

All consumers should take important fire safety precautions regarding kitchen fires.

- Have and maintain smoke alarms in your home.
- Pay attention when you are cooking.
- Should you have a grease fire on your stovetop, smother the fire by sliding a lid over the pan and turn off the stovetop. Leave the pan covered until the pan cools completely.
- Never put water on a grease fire or use a fire extinguisher on a grease fire.
- Never attempt to carry a flaming pan across the kitchen.