



Office of State Fire Marshal and State Building Codes Division

Information Bulletin February 2011

Antifreeze Solutions Within Residential Fire Sprinkler Applications

The purpose of this information bulletin is to update the residential fire sprinkler antifreeze solution issue.

The National Fire Protection Association Standards Council will be considering a new series of TIAs submitted by the NFPA 13 sprinkler committees and the NFPA 25 Committee on Inspection, Testing and Maintenance of Water Based Fire Protection Systems with a possible issuance at its meeting at the end of February.

The new TIAs have achieved the necessary three-fourths (75%) affirmative vote of their respective committees for both technical content and emergency nature. The new proposed TIAs are one each for NFPA 13D (TIA 1012), NFPA 13R (TIA 1013), NFPA 13D (TIA 1015) and NFPA 25 (TIA 1014). The contents of the new TIAs can be summarized as follows:

New definition for:

“Premixed Antifreeze Solution. A mixture of an antifreeze material with water that is prepared by the manufacturer with a quality control procedure in place that ensures that the antifreeze solution remains homogeneous.”

For new systems:

Antifreeze solutions would be limited to premixed solutions of **glycerin** at a maximum concentration of 48% by volume, or **propylene glycol** at a maximum concentration of 38% by volume. The antifreeze manufacturers would be required to provide a certificate indicating the type, concentration by volume and freezing point.

Other premixed solutions would be permitted for use if specially listed, including existing solutions listed for use with ESFR systems.

For existing systems:

Antifreeze solutions would be limited to solutions of **glycerin** at a maximum concentration of 50% by volume, or **propylene glycol** at a maximum concentration of 40% by volume.

Annually, antifreeze solutions would be tested. If any sample of the existing solution is in excess of the permitted concentrations, or if the type of antifreeze in the system cannot be reliably determined, the system would be required to be drained completely and refilled with a new acceptable solution. If concentrations greater than what is currently acceptable is needed to prevent freezing, alternative methods of preventing the pipe from freezing must be employed.

The TIA for NFPA 25 basically is the same as the others..

Until these new proposed TIAs are officially released by NFPA the Office of State Fire Marshal and the State Building Codes Division is recommending the following guidelines:

- Alternative options be considered to protect fire sprinkler systems from freezing rather than the use of antifreeze.
- If antifreeze is the option chosen to protect fire sprinkler systems then a premixed solution of concentrations not to exceed 40% **propylene glycol** and concentrations not to exceed 50% **glycerin** be used in both new and existing systems.

For additional information please contact Structural Program Chief, Richard Rogers at (503)378-4472 or richard.rogers@state.or.us.