



Update on New NFPA Antifreeze TIA Proposals

The Tentative Interim Amendments (TIAs) to NFPA 13, 13R and 13D issued by the NFPA Standards Council in August of 2010 effectively banned the use of antifreeze in new dwelling units. Those TIAs failed to address the use of antifreeze in other types of occupancies, and also provided no restrictions or guidance on the use of antifreeze in existing systems. NFPA staff attempted to provide its own guidance through the issuance of an updated Fire Safety Alert in that same month, which recommended that existing systems be limited to a maximum concentration by volume of 50% glycerin or 40% propylene glycol, and that only factory premixed solutions be used to ensure adequate mixing.

The NFPA sprinkler committees and the NFPA Committee on Inspection, Testing and Maintenance of Water Based Fire Protection Systems have now had time to study the matter, review the relevant research, and propose their own Tentative Interim Amendments to the NFPA standards. Balloting within the committees has been completed, and a new series of TIAs are going forward to the NFPA Standards Council for consideration and possible issuance at its meeting at the end of February.

Four TIAs have achieved the necessary three-fourths (75%) affirmative vote of their respective committees for both technical content and emergency nature and will be proceeding to the Standards Council, one each for NFPA 13D (TIA 1012), NFPA 13R (TIA 1013), NFPA 13 (TIA 1015) and NFPA 25 (TIA 1014). The TIAs would result in the addition of a definition of the term “premixed antifreeze solution” along with limitations for sprinkler systems in both new and existing systems in all types of occupancies. While the TIAs consist of many pages of deleted and added text, the essence of where they end up can be summarized as follows:

The definition...

“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 a concentration greater than what is currently acceptable is needed to prevent freezing, alternative methods of preventing the pipe from freezing must be employed.

For NFPA 25, newly introduced 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. For NFPA 13D, newly introduced solutions could include premixed solutions of glycerin at a maximum concentration of 50% by volume, or propylene glycol at a maximum concentration of 40% by volume.

Other premixed solutions would be permitted for use if specially listed.

When systems are drained, it is not typically necessary to drain drops, but consideration should be given to draining drops over 36 inches if there is evidence that unacceptably high concentrations of antifreeze have collected.

A separate TIA 1016 was proposed for NFPA 25, which would have allowed higher concentrations of antifreeze to continue for “unoccupied” building areas. It failed to obtain the necessary three-fourths committee support as some members concerned with the subjectivity of determining normally unoccupied areas joined those opposed to any restrictions on antifreeze in existing systems.

State Antifreeze Requirements

While the NFPA technical committees have been working on the antifreeze issues, state fire marshals have been struggling to decide how to interpret the NFPA Fire Safety Alerts and apply them within their own jurisdictions. To date, NFSA is aware of the following state actions:

California – On 9/8/10 issued Information Bulletin IB0910 concurring with the need to drain NFPA 13D, 13R and 13 systems protecting dwelling units and replacing with a premixed antifreeze solution not exceeding a maximum concentration of 40% propylene glycol or 50% glycerin where there is no viable alternative to antifreeze. For new systems, the bulletin suggested the same limits be observed where other alternatives to antifreeze were not available.

Colorado – Effective 9/15/10 the Standards for Hospitals and Health Care Facilities 6 CCR 1011-1 were revised to prohibit antifreeze within the dwelling unit portions of a new residential facility, defined as “an assisted living residence, acute treatment unit, community residential home for persons with developmental disabilities, intermediate care facility for persons with developmental disabilities, nursing home or residential hospice.” Effective 1/1/11 antifreeze was banned in the patient sleeping room, patient use area and egress corridor portions of new or expanded acute care facilities. Also effective 1/1/11 existing residential facilities and acute care facilities were limited to factory premixed solutions of maximum 50% glycerin or 40% propylene glycol. For systems with onsite water supply tanks, antifreeze is not permitted in the tanks.

Utah – Effective 10/1/10 the Fire Prevention Board directed the State Fire Marshal’s Office to file a 120 Day Emergency Rule prohibiting the use of antifreeze in new construction in residential or dwelling unit portions of NFPA 13, 13D, or 13R sprinkler systems, and to require that, if an existing system “that is protecting residences and dwelling units is drained” it can only be refilled with a maximum concentration of 40% propylene glycol or 50% glycerin.

Massachusetts – Effective 11/9/10 the Massachusetts State Building Code was revised to prohibit the use of antifreeze in NFPA 13, 13D and 13R sprinkler systems protecting dwelling units.

Alaska – On 11/24/10 the State Fire Marshal issued Policy 10-2 to follow the NFPA TIAs to prohibit the use of antifreeze in new NFPA 13D and 13R systems in areas that cover dwelling units. Existing systems are allowed to remain since “there is no known alternative to cover the climatic demands of Alaska except to allow existing systems to remain as is.”