

CITY & COUNTY OF DENVER
COMMUNITY PLANNING & DEVELOPMENT AGENCY
POLICY

Subject: ANTIFREEZE SOLUTION FOR FIRE SPRINKLER SYSTEM

Approved: Joseph L. Gonzales, Division Chief, Fire Prevention Division

Effective Date: December 2012

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This Policy applies to antifreeze solution for fire sprinklers systems designed and maintained per

2010 NFPA 13, 7.6.2.

2010 NFPA 13R, 5.4.3

2010 NFPA 13D, 8.3.3

2008 NFPA 25, 5.3.4.1

Reference: 2011 International Fire Code Amendments Chapter 47

2010 NFPA 13, 7.6.2 Antifreeze Solutions.

Section 7.6.2.1 DELETED IN ITS ENTIRETY

REVISED 7.6.2.1 to read as follows:

7.6.2.1 Except as permitted in 7.6.2.2, antifreeze solutions shall be listed for use in sprinkler systems.

REVISED 7.6.2.2 to read as follows:

7.6.2.2 Premixed antifreeze solutions of propylene glycol shall be permitted to be used with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

2010 NFPA 13R 5.4.3 Antifreeze Solutions.

Section 5.4.3 DELETED IN ITS ENTIRETY

REVISED 5.4.3 to read as follows:

5.4.3. Where antifreeze systems, dry pipe systems, and preaction systems are installed, they shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems* and this policy.

2010 NFPA 13D 8.3.3.2 Antifreeze Solutions.

Section 8.3.3.2. DELETED IN ITS ENTIRETY

REVISED 8.3.3.2 to read as follows:

8.3.3.2 Except as permitted in **8.3.3.2.2**, antifreeze solutions shall be listed for use in new sprinkler systems.\

REVISED by adding sections 8.3.3.2.1, 8.3.3.2.2, 8.3.3.2.3, 8.3.3.2.4 and 8.3.3.2.5

8.3.3.2.1 For existing systems, antifreeze solutions shall be limited to premixed antifreeze solutions of glycerine (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 50% by volume, propylene glycol at a maximum concentration of 40% by volume, or other solutions listed specifically for use in fire protection systems.

8.3.3.2.2* Premixed solutions of glycerine (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 48% by volume or propylene glycol at a maximum concentration of 38% by volume shall be permitted to protect piping that is supplying sprinklers in a specific area of the dwelling unit, where acceptable to the Authority Having Jurisdiction.

8.3.3.2.3 Documentation shall be presented to the AHJ to substantiate the use of the antifreeze solution.

8.3.3.2.4. The concentration of antifreeze solutions shall be limited to the minimum necessary for the anticipated minimum temperature.

8.3.3.2.5 The specific gravity of the antifreeze solution shall be checked by a hydrometer with a scale having 0.002 subdivisions.

2008 NFPA 25, 5.3.4.1 Antifreeze Solutions.

Section 5.3.4.1. DELETED IN ITS ENTIRETY

REVISED 5.3.4.1 to read as follows:

5.3.4.1 Except as permitted by 5.3.4.2.1 and 5.3.4.2.2, all antifreeze systems shall utilize listed antifreeze solutions.

REVISED by adding sections 5.3.4.1.1 and 5.3.4.1.2

5.3.4.1.1* For systems installed prior to September 30, 2012, listed antifreeze solutions shall not be required until September 30, 2022 where all of the following conditions are met:

(1)* The concentration of the antifreeze solution shall be limited to 50% glycerin by volume or 40% propylene glycol by volume.

(2) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States Pharmacopoeia 96.5%).

(3)* Antifreeze systems with concentrations in excess of 30% propylene glycol and 38% glycerine shall be permitted based upon an approved deterministic risk assessment.

5.3.4.1.2 Premixed antifreeze solutions of propylene glycol exceeding 30% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

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