

Subject 2127

July 19, 2018

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Inert Gas Clean Agent Extinguishing System Units, UL/ULC 2127, are being proposed for preliminary review and comment only:

- 1. For Preliminary Review Only: Vertical orientation of samples for leakage tests***
- 2. For Preliminary Review Only: Extinguishing System Units for Protection of Volumes less than 100 cubic meters***
- 3. For Preliminary Review Only: Clarification to UL/ULC 2127 for consistency with UL/ULC 2166***
- 4. For Preliminary Review Only: Aging Tests - Plastic Materials***
- 5. For Preliminary Review Only: Air oven aging test of plastic materials***
- 6. For Preliminary Review Only: Editorial corrections***

COMMENTS DUE: AUGUST 2, 2018

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. For Preliminary Review Only: Vertical orientation of samples for leakage tests

RATIONALE

Proposal submitted by: Blake Shugarman, UL LLC

Consistent with the one-year time leakage test, it is proposed that test samples for the 30-day elevated temperature test and temperature cycling test be evaluated in a vertical orientation since the units only contain gaseous extinguishing agent.

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PROPOSAL

27.2 Representative sample extinguishing system units pressurized to their operating pressure at 21°C (70°F), are to be placed in the horizontal and vertical position and maintained at the maximum storage temperature for 30 days then to be removed from the oven, conditioned at 21°C (70°F) for 24 h, and checked for pressure and loss. The units are then to be discharged through a representative piping system, the valve disassembled and the seals examined.

Exception: System units intended for transportation and storage in the vertical position are not required to be tested in the horizontal.

28.1 An extinguishing system cylinder valve assembly, including its pressure retaining accessories, shall not show any measurable leakage after being subjected to the Temperature Cycling Test.

Exception: System units intended for transportation and storage in the vertical position are not required to be tested in the horizontal.

28.2 Representative samples of extinguishing system units pressurized to their operating pressure at 21°C (70°F) are to be placed in the horizontal and vertical position and maintained at the minimum storage temperature for 24 h, then at the maximum storage temperature for 24 h, and then again at the minimum storage temperature for 24 h. The units are then to be conditioned at 21°C (70°F) for 24 h, after which they are to be checked for pressure and loss.

2. For Preliminary Review Only: Extinguishing System Units for Protection of Volumes less than 100 cubic meters

RATIONALE

Proposal submitted by: Blake Shugarman, UL LLC

The standard does not currently provide requirements to address extinguishing system units intended to protect volumes less than 100 m³.

These proposals allow for the design quantity of extinguishing agent to be the same for Class A and Class B hazards, when the volume limitation referenced in the manual is less than 100 m³ and provides requirements for evaluation of these limitations without changing the requirements for evaluation of volumes greater than or equal to 100 m³.

PROPOSAL

35 Class A and B Fire Clean Agent Extinguishment Tests

35.1 General test parameters

35.1.1.1 General

35.1.1.0 For extinguishing system units that do not have a maximum protected volume limitation specified in the instruction manual, the minimum extinguishing concentrations shall be determined from the Class A and B Fire Extinguishment Tests and the Nozzle Distribution Verification Tests.

35.1.1.0.1 For extinguishing system units that have a maximum protected volume limitation less than 100 m³ specified in the instruction manual, the minimum extinguishing concentration shall be determined from the Nozzle Distribution Verification Tests and shall be the same for Class A and B fire hazards.

36 Nozzle Distribution Verification Tests

36.1 General

36.1.1.0 For extinguishing system units that do not have a maximum protected volume limitation specified in the instruction manual, the minimum extinguishing concentrations shall be determined from the Class A and B Fire Extinguishment Tests and the Nozzle Distribution Verification Tests.

36.1.1.0.1 For extinguishing system units that have a maximum protected volume limitation less than 100 m³ specified in the instruction manual, the minimum extinguishing concentration shall be determined from the Nozzle Distribution Verification Tests and shall be the same for Class A and B fire hazards.

36.2.2 An enclosure(s) is to be constructed having:

- a) The maximum area coverage and minimum height limitation ~~for the extinguishing system unit or nozzle being tested; and~~
- b) ~~The minimum and maximum protected area height limitation and maximum volume limitation~~ (as applicable) limitations.

Exception: Although the test enclosure(s) representing the maximum height limitation are not required to have the maximum coverage area, for extinguishing system units that do not have a maximum protected volume limitation specified in the instruction manual, they are to be at least 13.1 ft (4 m) 4-m (13.1 ft) wide by 13.1 ft (4 m) 4-m (13.1 ft) long and 3531 ft³ (100 m³) in volume.

36.5.1 Test cans containing heptane as described in 36.4.1 are to be placed within 5 cm (2 inches) of the test enclosure and located within 30 cm (12 inches) of each of the top and bottom of the enclosure. A baffle is to be installed between the floor and ceiling at the midpoint between the direction of discharge and a wall. The baffle is to be perpendicular to the direction of nozzle discharge, and be 20 percent of the length or width of the enclosure, whichever is applicable with respect to nozzle location. Two additional cans are to be located within 5 cm (2 inches) behind the baffle within 30 cm (12 inches) of the bottom and at the vertical midpoint of the baffle. Closeable openings are to be provided in the top and bottom of the enclosure for venting during the pre-burn period. An additional test without the baffle is to be conducted separately using the 0.23 m² (2-1/2 ft²) square steel pan and the test methodology described in the Class B Fire Extinguishment Tests in 35.3.

Exception: For extinguishing system units that have a maximum protected volume limitation less than 100 m³ specified in the instruction manual, the Nozzle Distribution Verification Tests with the pan, the pan is permitted to be of a smaller surface area than specified provided the percent oxygen within the enclosure is within 0.5 units of normal oxygen level at atmospheric conditions at the time of the start of discharge when measured by a calibrated analyzer at a location equivalent to the height of the test pan and half the distance to a wall.

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