

UNDERWRITERS LABORATORIES INC. CERTIFICATION REQUIREMENT DECISION

This Certification Requirement Decision is prepared by UL LLC. It is normative for the applicable UL Product Certification Program(s); however, it is currently not part of the UL Standard(s) referenced below.

Product Category (CCN): DXOQ

Standard Number: UL 1660

Standard Title: Standard for Liquid-Tight Flexible Nonmetallic Conduit

Edition Date: July 2, 2014

Edition Number: 5

Section / Paragraph Reference: 5.10.1, 5.10.4, 6.1.3 and Table 9

Subject: Increase of the Wet Limitation for LFNC above 60C

***This Certification Requirement Decision (CRD) supersedes prior CRD issued May 2, 2018.**

DECISION:

5.10.1 Specimens of the jacket of Type LFNC-A or Type LFNC-C conduit and specimens of the flexible integral lining or jacket of Type LFNC-B conduit shall not absorb any more than 3.9 milligrams mass of water per square centimeter (25.0 milligrams mass of water per square inch) of immersed surface during immersion in tap water for 168 h at a temperature of $70.0 \pm 1.0^{\circ}\text{C}$ ($158.0 \pm 1.8^{\circ}\text{F}$) for insulation having a temperature rating of 60°C (140°F), at $82.0 \pm 1.0^{\circ}\text{C}$ ($179.6 \pm 1.8^{\circ}\text{F}$) for insulation having a temperature rating of 75°C (167°F) and at $94.0 \pm 1.0^{\circ}\text{C}$ ($201.2 \pm 1.8^{\circ}\text{F}$) for insulation having a temperature rating of 90°C (194°F).

A PVC or other material known to be non-hygroscopic and intended to have a LFNC conduit temperature rating of 60°C (140°F) need not be subjected to this test.

5.10.4 The water bath shall consist of a vitreous-enameled-steel or glass vessel containing tap water and shall be automatically controlled to maintain the water at ~~$70.0 \pm 1.0^{\circ}\text{C}$ ($158.0 \pm 1.8^{\circ}\text{F}$)~~ the specified temperature. The vessel shall be provided with a close-fitting sheet-metal cover plate of brass or other nonferrous metal.

6.1.3 The outside surface of conduit shall be marked with each of the following:

- a) "Liquid-tight flexible nonmetallic conduit Type ____" or "LFNC-__" (use "A", "B", or "C" for the type of LFNC conduit used). The means of reinforcement (fibrous or rigid) need not be marked
- b) The trade size and metric designator of the conduit, for example, 1/2 (16).
- c) The manufacturer's name, trade name, or trademark or other descriptive marking that identifies the organization responsible for the conduit.
- d) " 80°C dry", " 90°C dry", or " 105°C dry" may be marked on conduit whose separate jacket or integral lining and jacket complies with the 113°C (for the 80°C rating), 121°C (for the 90°C rating), or 136°C (for the 105°C rating) oven aging requirements in Table 9. Conduit that complies with one of these oven aging requirements but is not marked shall be acceptable for only 60°C dry use. Conduit may be marked " 60°C dry", but this use is understood without the marking.

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e) "70°C oil res" or "70°C oil resistant" may be marked on 80°C or 105°C dry use conduit whose separate jacket or integral lining or jacket complies with the 70°C oil requirements in Table 9. Conduit, which complies and is not marked shall be acceptable for 60°C oil resistant use only. 60°C dry use conduit shall not be so marked.

f) "SR", "Sun Res", or "Sunlight Resistant" may be marked on conduit whose separate jacket or integral lining or jacket complies with the weather resistance test requirements in Clauses 5.12.1 and 5.12.2. Conduit that complies but is not marked shall not be acceptable for use where exposed to direct rays of the sun.

In the United States, "Outdoor" may be additionally marked.

g) "75°C wet" or "90°C wet" may be marked on 80°C or 105°C dry use conduit whose separate jacket or integral lining or jacket complies with the 75°C or 90°C wet requirements in Table 9. Conduit, which complies and is not marked shall be acceptable for 60°C wet use only. 60°C dry use conduit shall not be so marked. Conduit may be marked "60°C wet", although this is understood without the marking.

h) Conduit may be marked "60°C oil res" or "60°C oil resistant", although this is understood without the marking.

i) Finished conduit that complies with the Direct-Burial Stiffness Test, in Clause 5.16, may be surface marked "Direct Burial", "Burial", "Dir Burial", or "Dir Bur".

j) Finished conduit that complies with the Flame Test in Cable Trays - FT4 per Clause 5.3 may be marked "FT4".

Table 9
Physical properties of jacket from Type LFNC-A or Type LFNC-C conduit and of flexible lining or jacket from Type LFNC-B conduit
(See Clauses 5.13.1 and 6.1.3)

Rating	Condition of specimens at time of measurement	Minimum ultimate elongation [25 mm (1 in)]	Minimum tensile strength
All specimens with or without markings	Unaged	100 percent	11.0 MN/m ² (1600 lbf/in ²)
No jacket marking or 60°C dry, 60°C wet, and 60°C oil resistant	Aged in a full-draft, circulating-air oven for 168 h at 100.0 ±1.0°C (212.0 ±1.8°F) Aged in IRM 902 oil for 168 h at 60.0 ±1.0°C (140.0 ±1.8°F)	45 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen	85 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen
80°C dry, 60°C wet, and 60°C oil resistant	Aged in a full-draft, circulating-air oven for 168 h at 113.0 ±1.0°C (235.4 ±1.8°F) Aged in IRM 902 oil for 168 h at 60.0 ±1.0°C (235.4 ±1.8°F)	45 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen	70 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen
80°C dry, 60°C wet, and 70°C oil resistant	Aged in a full-draft, circulating-air oven for 168 h at 113.0 ±1.0°C (235.4 ±1.8°F) Aged in IRM 902 oil for 168 h at 70.0 ±1.0°C (158.4 ±1.8°F)	45 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen	70 percent of the results of the unaged specimen 70 percent of the results of the unaged specimen
90°C dry, 60°C wet, and 60°C oil resistant	Aged in a full-draft, circulating-air oven for 168 h at 121.0 ±1.0°C (249.8 ±1.8°F)	45 percent of the results of the unaged specimen	70 percent of the results of the unaged specimen

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