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# UL 758

## STANDARD FOR SAFETY

### Appliance Wiring Material



UL Standard for Safety for Appliance Wiring Material, UL 758

Third Edition, Dated May 2, 2014

### **Summary of Topics**

***This revision to ANSI/UL 758 dated January 20, 2021 includes the following changes in requirements:***

- Addition of Halogen Free (HF) or Low-Smoke Halogen Free (LSHF) Wire to [51.2](#)***
- Insulation Resistance Test Time, Revised [35.1](#)***

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated November 5, 2021.

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**ANSI/UL 758-2022**

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## **UL 758**

### **Standard for Appliance Wiring Material**

First Edition – July, 2000  
Second Edition – April, 2006

### **Third Edition**

**May 2, 2014**

This ANSI/UL Standard for Safety consists of the Third Edition including revisions through January 20, 2022.

The most recent designation of ANSI/UL 758 as an American National Standard (ANSI) occurred on January 20, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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## INTRODUCTION

### 1 Scope

1.1 These requirements cover Appliance Wiring Material (AWM) in the form of single insulated conductors, multi-conductor cables, optical fibers, individual insulated conductors, and fiber optic members for use as components in multi-conductor cables.

1.2 The appliance wiring material covered by the requirements of this Standard are solely for use as factory-installed wiring either within the overall enclosure of appliances and other equipment (internal wiring) or as external interconnecting cable for appliances (external wiring), or for further processing as components in multi-conductor cables.

1.3 These requirements do not cover any wire, cable, or cord types that are presently covered in the National Electrical Code (NEC), NFPA 70, and are not intended for installation in buildings or structures in accordance with the NEC except within the scope of the installation instructions of the end-product for which their use is intended.

1.4 These requirements cover appliance wiring material with operating temperatures from a minimum 60°C (140°F) dry temperature rating and voltage ratings from a minimum 30-volt rating. Conductor size ranges from 50 AWG to 2000 kcmil. Appliance wiring material (AWM) composed entirely of optical fiber members or electrical conductors in combination with optical fiber members are also covered by these requirements.

1.5 These requirements do not cover the optical performance of any optical-fiber member or group of such members.

1.6 These requirements do not cover constructions which utilize flat, insulated conductors that are not laid parallel. The requirements for these products are found in the Standard for Flexible Materials Interconnect Constructions, UL 796F.

1.7 The evaluation of the performance of the semi-conductive polymeric layer described in [5.9](#) is not covered by this Standard.

1.8 In addition to these constructions, this Standard establishes guidelines for the evaluation of special constructions that, due to their specific end product use, are not required to meet all of the requirements for general construction AWM.

1.9 The final acceptance of AWM is dependent upon its use in complete equipment that conforms with the standards applicable to such equipment.

### 2 General

#### 2.1 Components

2.1.1 Except as indicated in [2.1.2](#), a component of a product covered by this Standard shall comply with the requirements for that component.

2.1.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.1.5 Polymeric materials evaluated for its intended use, are not prohibited from being used in the insulation and jacket applications indicated in [Table 2.1](#).

**Table 2.1**  
**Polymeric materials for use in wire and cable and associated AWM ratings**

| AWM rating              | Component  | Minimum average thickness, |      | Compound's use or rating                                                       |
|-------------------------|------------|----------------------------|------|--------------------------------------------------------------------------------|
|                         |            | inch                       | (mm) |                                                                                |
| Sunlight resistant      | Insulation | 0.030                      | 0.76 | Outer PVC or TPE insulation rated for 720 hours sunlight resistance            |
| Sunlight resistant      | Jacket     | 0.030                      | 0.76 | Outer PVC or TPE jacket rated for 720 hours sunlight resistance                |
| 60°C Wet                | Insulation | 0.030                      | 0.76 | PVC insulation rated for use in Type TW thermoplastic-insulated wire           |
| 60°C or 75°C Wet        | Insulation | 0.030                      | 0.76 | PVC insulation rated for use in Types THW or THHW thermoplastic-insulated wire |
| 60°C or 75°C Wet        | Insulation | 0.015                      | 0.38 | PVC insulation rated for use in Type THWN thermoplastic-insulated wire         |
| 60°C, 75°C, or 90°C Wet | Insulation | 0.015                      | 0.38 | PVC insulation rated for use in Type THWN-2 thermoplastic-insulated wire       |

## 2.2 Units of measurement

2.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

2.2.2 Unless otherwise indicated, all voltage values mentioned in this Standard are root-mean-square (rms).

2.2.3 Equipment calibrated in metric units is to be used when a requirement is applied in metric terms.

## 2.3 Undated references

2.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

2.3.2 Wherever the designation "UL 1581" is used in this Standard, reference is to be made to the designated part(s) of the Reference Standard for Electrical Wires, Cables, and Flexible Cords, UL 1581. Wherever the designation "UL 62" is used in this Standard, reference is to be made to the designated part(s) of the Standard for Flexible Cords and Cables, UL 62.