

## UL Standards

Underwriter's Laboratories (UL) produces a catalog of Standards for Safety that covers most products currently being sold today. This catalog contains listings of standards both by standard number as well as by key title words such as dishwashers, electric ranges etc. For the most updated information contact UL at <http://www.ul.com> or go directly to the **UL Standards Department site** at: <http://ulstandardsinfontet.ul.com>. There is no www in this address. This new UL Standards Department site contains:

-  **Standards Pricing Information**
-  **Standards Bulletins**
-  **Scopes of UL Standards**

As with most national and international standards, UL standards are developed by committees in association with individuals representing industry, academia, test laboratories, consumers and others. Each standard that is developed by a committee contains the basic requirements for the product being tested. The requirements set forth in the standard are based upon sound engineering principles, research and experience in the field and represent the minimum requirements that the product must comply with to be UL marked.

It is important to note that the ultimate responsibility for product safety is the manufacturer not the standard. Compliance with the standard does not fully protect the manufacturer from liability and conversely compliance with the text of the standard does not mean the product will comply with the standard should examination of the product reveal a design which compromises safety. Lets look at the structure of a UL standard. The content of each standard can be broken up into the following sections: Introduction, Construction, Performance, Manufacturing and Production Tests, Markings and Appendix.



## Components of a UL Standard

-  **Introduction**
-  **Product Construction**
-  **Performance**
-  **Manufacturing & Production Tests**
-  **Markings**

## Components of a UL Standard

The **introduction** gives a basic overview of the standard and any other standards to which this standard may reference. The main focus is to outline what products are covered in the standard. This section will also provide an introduction to any terms and units of measure that will be used in later sections.

All aspects of **product construction** and assembly related to safety are dealt with in the section on construction. The focus is to insure that the product has been well manufactured and is acceptable from a safety standpoint. Minimum specifications are outlined from the frame, enclosure and mechanical assembly to the spacing and requirements of electrical components. The designed is also reviewed on protection against personal injury. When it comes to consumer products the section on protection against personal injury is very extensive.

The section on **performance** covers all of the various tests that need to be performed during initial product evaluation. This section will focus on the four types of safety requirements: shock, fire, energy and mechanical hazards as they pertain to the safety of an operator of the product. The performance tests verify that the manufacturer has followed the requirements laid out in the section on construction. Performance tests are generally extensive and cover: operation of the product under normal and under fault conditions such as overload, product endurance, mechanical impacts to the enclosure, effect of moisture and humidity, and electrical safety tests such as leakage current, dielectric withstand, ground continuity and ground bond.

The tests that must be performed on all products on an on going basis are outlined in the **manufacturing and production tests** section. The production tests are a subset of the performance tests and are generally less stringent. Production tests always include a dielectric withstand test, polarization and ground continuity or ground bond. Note that ground continuity and ground bond tests are only applicable to products with a three-prong power cord. Medical products will also include a leakage current test. The required production test voltages and limits are outlined or referenced back to a performance test requirement. To ensure continued compliance regular surveillance is required in the form of quarterly factory inspections.

The sections on **markings** will cover required terms and information that must be in the instruction manual, on the product, and product carton. Examples of the statements that are required in the instruction manual on appliances are: “IMPORTANT SAFEGUARDS”, “Read all instructions”, “Avoid contacting moving part” and “SAVE THESE INSTRUCTIONS” to name just a few. Have you ever wondered why all of the appliance manuals seemed the same? Now you know why. Even format is specified right down to the minimum size of the letters in the instruction manual.

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