



Protective Vents

UL 94 FLAMMABILITY STANDARD

UL 94 STANDARD FOR FLAMMABILITY TESTING

Underwriters Laboratory has created the UL94 Standard for Safety to cover tests for flammability of plastic materials used for parts in devices and appliances. Aligned with IEC 60707, IEC 60695-11-10, IEC 60695-11-20, ISO 9772 and ISO 9773, the UL test methods describe the flammability properties of materials in response to a

small open flame or radiant heat source under controlled laboratory conditions. The UL standard classifies plastics according to the minimum thickness at which it stops burning when tested in a horizontal or vertical orientation.

FIGURE 1: PAGE 1 OF A TYPICAL YELLOW CARD

Component - Plastics					2 E332853		
1 W L GORE & ASSOCIATES INC 401 AIRPORT RD, PO BOX 1550, ELKTON MD 21921							
3 VE7(f2) Polytetrafluoroethylene (PTFE)							
5 Color	6 Min Thk (mm)	7 Flame Class	HWI	HAI	8 RTI Elec	8 RTI Imp	8 RTI Str
NC	0.20 - 0.23	V-0	-	-	180	180	180
Comparative Tracking Index (CTI): - Dielectric Strength (kV/mm): - High-Voltage Arc Tracking Rate (HVTR): - Dimensional Stability (%): -				Inclined Plane Tracking (IPT): - Volume Resistivity (10x ohm-cm): - High Volt, Low Current Arc Resis (D495): -			
4 (f2) - Subjected to one or more of the following tests: Ultraviolet Light, Water Exposure or Immersion in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL.							
ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.							
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- MATERIAL SUPPLIER** — The name and location of the company that submitted the materials for testing
- UL FILE NUMBER** — UL-assigned identification number for the company submitting the materials for testing
- MATERIAL DESIGNATION** — The name of the polymer and the intended rating for outdoor use (see item 4)
- OUTDOOR SUITABILITY** — Results of UL 746C test for the material's suitability for outdoor use; this test evaluates the exposure to ultraviolet (UV) light for 720 hours of twin-enclosed carbon or 1,000 hours of xenon-arc weatherometer conditioning. It also includes water exposure or immersion

for seven days at 70 °C. The material is tested before and after this conditioning for flammability, mechanical impact and mechanical strength. The results are reported as follows:

- The submitted material has met ultraviolet (UV), water exposure and immersion requirements as specified in UL 746C
- Material has met only one or two of the testing requirements specified in UL 746C, but not all three

GORE™ membranes have passed the UV testing requirements in UL 746C; however, the membrane is too thin to be tested for mechanical impact, which is required for the f1 rating.



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5 COLOR — The original color of the material provided by the supplier, defined in UL material color codes

6 MINIMUM THICKNESS — Minimum thickness of the material to meet the flame class; thickness is defined as the minimum cross section value

7 FLAME CLASS — The UL 94 classification that the material received after testing (Table 1)

8 RELATIVE THERMAL INDEX (RTI) — The temperature (in Centigrade) at which a material begins to degrade thermally

TABLE 1: UL94 CLASSIFICATIONS

Class	Orientation of Test Sample	Definition	Time of Burn Allowed	Particle Drop Allowed		Plaque Holes
				Flaming	Non-Flaming	
UL94 HB	Horizontal	Slow burning	Burning rate of less than 76 mm/min for a specimen less than 3 mm thick and burning stops before 100 mm			
UL94 V-2	Vertical	Burning stops	30 seconds	Yes	Yes	
UL94 V-1	Vertical	Burning stops	30 seconds	No	Yes	
UL94 V-0	Vertical	Burning stops	10 seconds	No	Yes	
UL94 5VB	Vertical	Burning stops	60 seconds	No	No	Yes
UL94 5VA	Vertical	Burning stops	60 seconds	No	No	No

About W. L. Gore & Associates, Inc.

Gore is a technology-driven company focused on discovery and product innovation. Well known for waterproof, breathable GORE-TEX® fabric, the company's portfolio includes everything from high-performance fabrics and implantable medical devices to industrial manufacturing components and aerospace electronics. Founded in 1958 and headquartered in Newark, Delaware, Gore employs more than

10,000 associates with manufacturing facilities in the United States, Germany, the United Kingdom, Japan and China, and sales offices around the world. Gore is one of a select few companies to appear on all of the U.S. "100 Best Companies to Work For" lists since the rankings debuted in 1984. The company also appears regularly on similar lists around the world. Learn more at gore.com.

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