

### 94V Vertical Burning Test

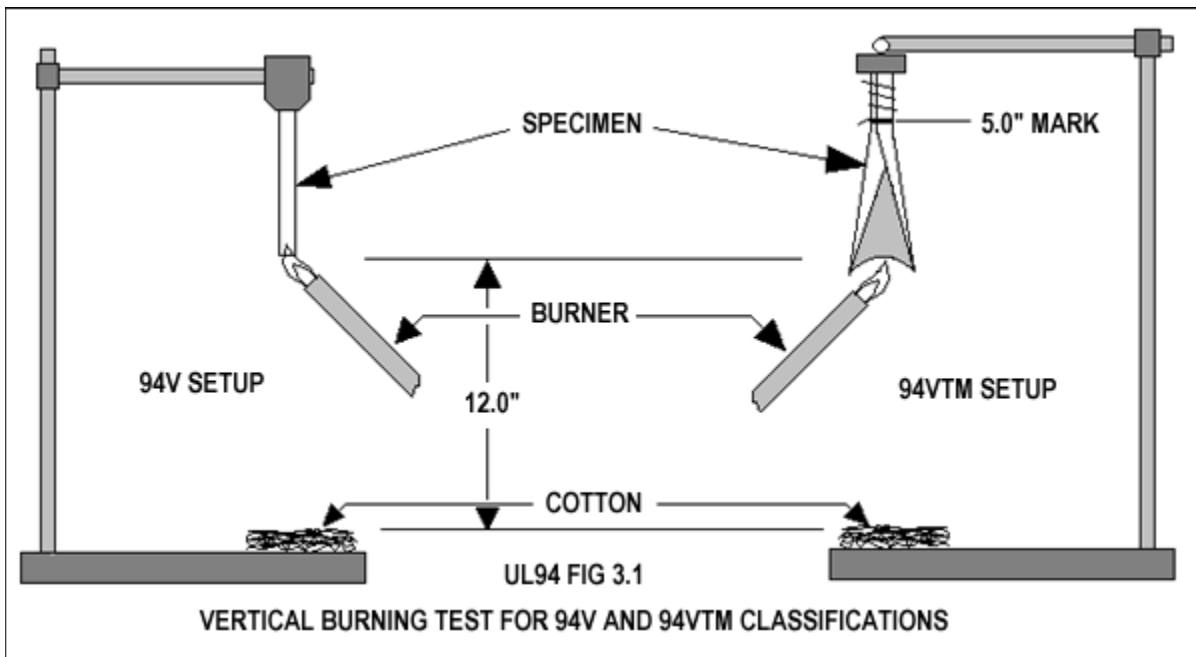
This test includes three classifications – 94V-0, 94V-1 and 94V-2 – and would typically be acceptable for portable, unattended, intermittent-duty, household-use appliances (i.e., coffee makers). Which classification applies to a particular application depends on many factors, including:

- Size and thickness of part.
- Distance from un-insulated live parts.
- Hot wire ignition.
- High current arc ignition.
- High voltage arc tracking rate.

This test uses a ½" x 5" specimen which is held at one end in the vertical position (see Fig. 3.1). A burner flame is applied to the free end of the specimen for two 10 second intervals separated by the time it takes for flaming combustion to cease after the first application. Two sets of 5 specimens are tested. The following are recorded for each specimen:

- Duration of flaming combustion after the first burner flame application.
- Duration of flaming combustion after second burner flame application.
- Duration of glowing combustion after second burner flame application.
- Whether or not flaming drips ignite cotton placed below specimen.
- Whether or not specimen burns up to holding clamp.

UL94 Figure 3.1 -- Vertical Burning Test for 94V and 94VTM Classifications





# UL 94 Flammability Rating

## PolyArmor® - G50

(All Colors)

Date: 16-DEC-2018

Rev.: Version 1.0

Criteria Conditions	94V-0	✓ or ✗	94V-1	✓ or ✗	94V-2	✓ or ✗
Total flaming combustion for each specimen	≤ 10s	✓	≤ 30s		≤ 30s	
Total flaming combustion for all 5 specimens of any set	≤ 50s	✓	≤ 250s		≤ 250s	
Flaming and glowing combustion for each specimen after second burner flame application	≤ 30s	✓	≤ 60s		≤ 60s	
Cotton ignition by flaming drips from any specimen	NO	✓	NO		YES	
Glowing or flaming combustion of any specimen to holding clamp	NO	✓	NO		NO	

✓ = Pass    ✗ = Fail

### 94V Thin Material Vertical Burning Test

This test includes three classifications – 94V-0, 94V-1 and 94V-2 Materials that are thin gauge – typically ≤ 10 mil, or very flexible may distort, shrink or flex during the 94V test. These materials can be tested using 94VTM – the thin material version of the vertical burning test. This differs in several ways from the 94V test:

- The specimen size is 8" x 2".
- The specimen is rolled longitudinally around a ½" dia. mandrel and taped on one end. When the mandrel is removed the specimen forms a cone shape, which provides rigidity to the length of the specimen (see Fig. 3.1)
- The two flame applications have duration of three seconds instead of ten.

Although this test was designed for thinner gauge materials, any material can be tested using 94VTM as long as can be formed around a ½" mandrel. The test is performed in the same manner as 94V with the above mentioned differences. The Material Classification criteria is also the same as 94V (see Table 1.) except that no specimens shall have flaming or glowing combustion up to a mark 5" from the bottom (free end) of the specimen.

It is usually advantageous to test materials using 94VTM instead of 94V because it is usually easier to pass or get a better rating as long as the material can be bent around the ½" mandrel.



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Total flaming combustion for each specimen	≤ 10s	✓	≤ 30s		≤ 30s	
Total flaming combustion for all 5 specimens of any set	≤ 50s	✓	≤ 250s		≤ 250s	
Flaming and glowing combustion for each specimen after second burner flame application	≤ 30s	✓	≤ 60s		≤ 60s	
Cotton ignition by flaming drips from any specimen	NO	✓	NO		YES	
Glowing or flaming combustion of any specimen to holding clamp	NO	✓	NO		NO	

✓ = Pass    ✗ = Fail

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