
UL 94 Vertical Burning Classification Test of "C-PEEK"

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3 pages

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1.0 ACCREDITATION

ISO/IEC 17025 for a defined Scope of Testing by the American Association for Laboratory Accreditation (A2LA), Certificate Number: 6524.03.

2.0 SPECIFICATIONS OF ORDER

Perform flammability classification testing in accordance with Paragraph 8 of UL 94 Sixth Edition, "Test for Flammability of Plastic Materials for Parts in Devices and Appliances" - 50W (20 mm) Vertical Burning Test; V-0, V-1 or V-2, as per Element New Berlin reference Purchase Order No. ENB025060PO and Element Quotation No. 22-002-412226 dated December 30, 2022.

2.1 History of Revision

This is the original.

3.0 SAMPLE IDENTIFICATION (Element sample identification number 23-002-S0010-1)

Plastic material, approximately 3 mm in thickness, described as "Carbon fiber reinforced PEEK", identified as: "C-PEEK"

4.0 SUMMARY OF TEST PROCEDURE

Ten test specimens, each 125 x 13 mm, are individually suspended vertically, 300 mm above a horizontal layer of cotton batting and are exposed to a specified flame from a laboratory burner for a period of 10 seconds, after which the burner is withdrawn and the afterflame time is recorded. As soon as the afterflame ceases, the procedure is repeated by applying the burner flame for a further 10 seconds.

Five specimens are conditioned for a minimum period of 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and a relative humidity of $50 \pm 5\%$ before testing.

Five additional specimens are conditioned (aged) in an air-circulating oven at a temperature of 70°C for a period of 168 hours before testing.

5.0 MATERIAL CLASSIFICATION REQUIREMENTS

5.1 UL 94V-0

A material classified UL 94V-0 shall:

- Not have any specimens with an afterflame time exceeding 10 seconds for either flame application
- Not have a total afterflame time for any set of five specimens exceeding 50 seconds
- Not have an afterflame time plus afterglow time for each specimen after the second flame application exceeding 30 seconds
- Not have any specimen with afterflame or afterglow reaching the holding clamp
- Not ignite the cotton indicator by flaming particles or drops

5.2 UL 94V-1 or UL 94V-2

A material classified UL 94V-1 or UL 94V-2 shall have:

- Afterflame times of no greater than 30 seconds for any specimen tested and a total for the five specimens not exceeding 250 seconds
- Not have an afterflame time plus afterglow time for each specimen after the second flame application exceeding 60 seconds
- Not have any specimen with afterflame or afterglow reaching the holding clamp
- For 94V-1 classification, the cotton indicator may not be ignited by flaming particles or drops
- For 94V-2 classification, the cotton indicator may be ignited by flaming particles or drops

6.0 TEST RESULTS

UL 94 - Test for Flammability of Plastic Materials for Parts in Devices and Appliances

50W (20 mm) Vertical Burning Test - Paragraph 8

SAMPLE: "C-PEEK"

6.1 Before Aging: Specimen Conditioning: Minimum 48 hours at $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH

Test	Afterflame Time (s)		Burns to Holding Clamp (Yes/No?)	Flaming Particles Ignite Cotton (Yes/No?)	Glowing Time After 2 nd Application (s)	
	First	Application				Second Application
1:	0.0		0.0	No	No	0.0
2:	0.0		0.0	No	No	0.0
3:	0.0		0.0	No	No	0.0
4:	0.0		0.0	No	No	0.0
5:	0.0		0.0	No	No	0.0
Total:	0.0					

6.2 After Aging: Specimen Conditioning: 168 hours in an air-circulating oven at 70°C

Test	Afterflame Time (s)		Burns to Holding Clamp (Yes/No?)	Flaming Particles Ignite Cotton (Yes/No?)	Glowing Time After 2 nd Application (s)	
	First	Application				Second Application
1:	0.0		0.0	No	No	0.0
2:	0.0		0.0	No	No	0.0
3:	0.0		0.0	No	No	0.0
4:	0.0		0.0	No	No	0.0
5:	0.0		0.0	No	No	0.0
Total:	0.0					

Classification:

UL 94V-0

7.0 CONCLUSIONS

When tested at an approximate thickness of 3 mm, the material identified in this report meets the qualification criteria to be classified to UL 94V-0.



Robert A. Carleton,
Technician.



Ian Smith,
Technical Manager.

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