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Material Assessment Report

UL94 Vertical burning test for classifying materials

GCS-060-GS

Summary

UL94 vertical burning test for classifying materials V-0, V-1, or V-2 was performed on a batch of GSC-060-GS 20g Syringe sent by GCS UK Ltd. The material arrived as a paste. Specimens 125 x 13mm were applied to an aluminium substrate and tested. The specimens on application of the flame showed no signs of burning with no dripping present, hence the material must be classified as V-0 under UL94 vertical testing classification.

The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test, they are not intended to be sole criterion for assessing the potential fire hazard of the product in use. Small differences in the composition or thickness of the product may significantly affect the fire performance. Care should be taken to ensure that any specimens supplied for testing are fully representative of the product to be used.

Introduction

GCS UK Ltd has contracted an independent test laboratory to perform UL94 vertical burning fire test on a sample material arrived in paste form. The paste was applied to an aluminium substrate, creating five specimens, with nominal dimensions 125 x 13 mm.

Experimental

The burner and the specimen were setup as shown in Figure 1.

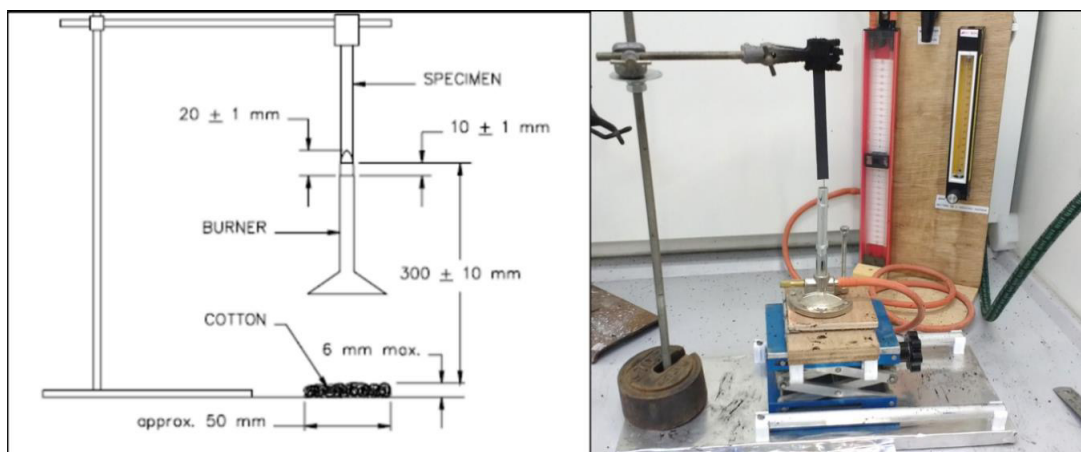


Figure 1 Test schematic (left) and setup (right).

The methane gas flow was set to 105 ml/min with a back pressure less than 10 mm of water. The air intakes of the burner were adjusted to obtain a blue flame 20mm high.

The following method was used as per standard:

- i. The flame was applied centrally to the middle point of the bottom edge of the specimen such that the top of burner is 10 mm below that point of lower end of specimen and maintained at that distance for 10 seconds.
- ii. The specimen was then moved away from the flame to a minimum distance of 150 mm and simultaneously the afterflame time A in seconds was measured.
- iii. As soon as the after flaming ceased the specimen was brought back to the flame and held for 10 seconds. The specimen was then moved away from the flame to a minimum distance of 150 mm and simultaneously the afterflame time B and afterglow time C in seconds were measured.
- iv. It was also noted whether or not the specimens continued to burn up to the holding clamp and if any of the specimen's drip flaming particles which ignited the cotton.

A – Duration of flaming after first flame application (seconds).

B – Duration of flaming after second flame application (seconds).

C – Duration of glowing after second flame application (seconds).

D – Whether or not specimens burn up to the holding clamp.

E – Whether or not specimens drip flaming particles which ignite cotton swatch.

Based on the above measurements the specimens were classified using the following table:

Table 1 Classification criteria as per UL94.

Conditions	V - 0	V - 1	V - 2
Afterflame time for each individual specimen A or B	≤ 10 s	≤ 30 s	≤ 30 s
Total afterflame time for any condition set (A+B) for 5 specimens	≤ 50 s	≤ 250 s	≤ 250 s
Afterflame plus afterglow time for each individual specimen after the second flame application (B+C)	≤ 30 s	≤ 60 s	≤ 60 s
Afterflame or afterglow of any specimen up to the holding clamp	NO	NO	NO
Cotton indicator ignited by flaming particles or drops	NO	NO	YES

Test results

Table 2 shows the test results for each plaque supplied, respectively.

Table 2 Test results GSC-060-GS 20g Syringe

Specimen No.	A	B	C	D	E
1	Nil	Nil	Nil	No	No
2	Nil	Nil	Nil	No	No
3	Nil	Nil	Nil	No	No
4	Nil	Nil	Nil	No	No
5	Nil	Nil	Nil	No	No

Conclusion

GSC-060-GS 20g Syringe upon removal of the flame after the initial 10 second application, 5 samples showed zero signs of burning. After the removal of the second application of the flame, all samples showed zero signs of burning. All sample extinguished with zero dripping during and after application of the flame. The GSC-060-GS 20g Syringe must be classified as V-0 as per UL94 vertical fire testing classification.

Appendix

The following images shows before and after shots of the samples.

