

## Do you need Flame Retardant Plastics?

When designing your next custom moulding(s) to enshroud your new innovation, do you need to consider using a flame retardant material and if so, what category level?

For example, a fundamental requirement for FDA (The U.S. Food and Drug Administration) approval is a UL94/VO flame retardant rating so it is important to understand your requirements before you head down a manufacturing route that you can't change without huge investments. The costs of changing suppliers, materials, tooling and re-testing can be huge, not to mention time wasting with critical deadlines missed.

Questions you should consider are:

- 1. Where are you likely to sell your products?**
- 2. What classification level will be required for the type of enclosure?**
- 3. Can your chosen manufacturing process and supplier support you with a compliant material and advise yellow card details?**

Materials that are compliant can be found on the [UL Online Certification Website](#) and provide you with an E number which can then be cited in your Quality Pack; in the past an actual yellow card was provided to the material manufacturer so that they could be handed out to each company using their material!

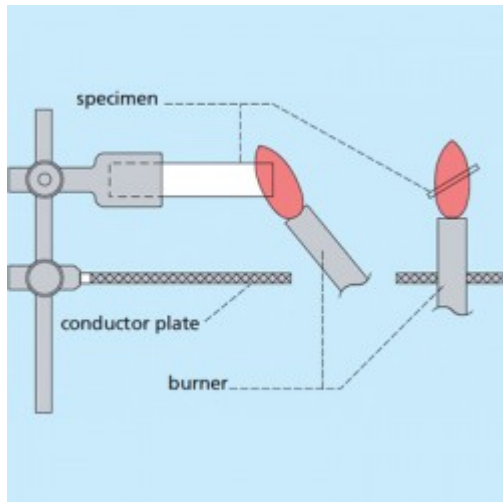
### **So what exactly is involved with the UL94 V ratings?**

V stands for vertical burn test and detailed information on the UL94 testing procedure can be found at [UL.com](#). UL94 is a material burning test done on a defined specimen of raw material of the product in question. It does not, however, carry out a flame test on the final product. UL94 differs between a horizontal burning test **UL94 HB** and a vertical burning test **UL94 V**.

For the vertical test UL94 V, there are three flame ratings defined: UL94 V0, UL94 V1 and UL94 V2. In all these burning tests, an open flame is applied for a specified time to the

specimen. As the burning behaviour also depends on the thickness of the material, it is important to classify the material not only according to HB, V0, V1 or V2 but also to mention the thickness of the specimen. The longer the flame is applied the greater the rating with V0 indicating the greatest resistance with the least amount of ash.

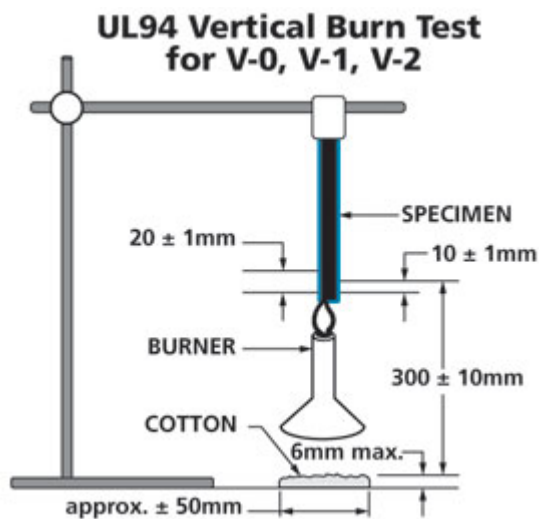
### UL94 HB – Horizontal Burning Test



**Test Criteria:** Burning rate of specimen in mm/min.

**Classification:** According to HB

### UL94 V – Vertical Burning Test



[Image courtesy of RTP Company](#)

Understanding certified materials and what is required for your product is an important aspect of the design specification and should be considered as early as possible. Avoiding standards/testing can be cost-saving at the time BUT missing a vital element of compliance is a high risk strategy and will cost you in the long-term.

**At Midas we only process UL94 V0 rated RIM materials so if you are embarking on a medical device or diagnostic kit and would like to understand more about how Midas can support you in all areas of compliance, please get in touch or pop along to our [website](#)**

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