

# Flammability Rating

**The following statement defines Optical Filters position with regards to flammability rating of its laminated products.**

No flammability tests have been carried out by Optical Filters on any of the large variety of plastic and glass laminates produced by the Company. The following guide-lines are issued to assist Customers in assessing the suitability of our laminates for their particular application.

The adhesive used in our dry film optical lamination is based on extruded polyurethane. The lamination is achieved through pressure and temperature. Typical total lamination adhesive thickness is 0.25 – 0.76mm. The softening point and maximum operational temperature of this adhesive system is 75°C. No solvents, cold pour adhesive or self-adhesive substrates are involved.

The outer material layers of the laminates are either glass, polycarbonate or, acrylic. The following guidelines may be of assistance;

- **Glass** – Being incombustible it has an excellent flammability rating.
- **Polycarbonate** – All polycarbonates used in laminates manufactured from February 2002 have a UL94 HB classification. Registration File No. E165805.
- **Acrylic** – Very poor and not suitable for applications requiring a flammability rating.

The UL94-Vx is a Vertical Burn test in which the sample is ignited from the bottom. The highest rating V0 is obtained when there is no dripping from the sample, V1 allows dripping but no burning droplets and V2 allows burning droplets and the fire has to stop before all the material is gone (auto extinguishable).

If all the material has burnt away in the Vertical Burn test the similar Horizontal Burn test is performed. The HB rating is issued if material auto extinguishes. If not the material is 'not classified'.

**Since October 1997 all polycarbonate extrusion grades were re-designated  
by Underwriters Laboratories as UL94-HB.**

Where a flammability rating is available on a component in the laminate we do not claim or infer that this rating can be extended to the complete laminate. Where a Customer requests a flammability rating, UL or other, we recommend either a glass or polycarbonate laminate.

The above statement defines our position on the subject of flammability ratings. Under no circumstances, including notes on customer drawings, discussion with our staff or extrapolation from substrate supplier's data, does Optical Filters claim any flammability certification or registration from Underwriters Laboratories or other certification body for any of its laminated products.

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