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Bunsen Burner Tests: Understanding Their Use & Context at UL To Aid Cabin Fire Safety Discussions

There has been much discussion regarding Bunsen Burner testing in the IAMFTWG and the ARAC flammability working group. Some have suggested that other Bunsen Burner tests could be used as an alternative for the 12 or possibly 60 second vertical burn tests in FAR 25.853, Appendix F. Discussions often turn to Underwriters Laboratories (UL), which has several Bunsen Burner tests falling under their UL 94 standard, and to questions regarding the meaning/relevance of Bunsen Burner testing in general. What I find not discussed, nor as well understood in the aircraft industry, is how UL actually uses Bunsen Burner tests as a safety element in their overall end product recognition and listing programs.

By better understanding how the often mentioned UL 94 V-0 rating - and the less mentioned UL 94 V-2, V-1, HB, 5V-A, and 5V-B ratings – are used in conjunction with other Bunsen Burner tests and analysis, the audience will gain insight into fire threat mitigation elements that are encountered every day in U.S. homes, offices, and consumer electrical devices. The presentation will cover UL's methodology of material flammability "pre-selection" criteria, UL's hierarchy of Bunsen Burner tests, and include a discussion of end-product Bunsen Burner tests that UL uses if materials fail the pre-selection criteria. The presentation will also cover limitations and concerns that arise from UL's small scale tests**. The presentation is intended to describe and educate, and will not advocate for or against any particular position in the FAA's Bunsen Burner discussions.

**The views expressed in the presentation will be entirely from the author as an employee of a plastics material supplier (SABIC) and may not reflect the opinions of Underwriters Laboratories.

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