## **Blow-Out Stability of Gaseous Non-Premixed Jet Flames**

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## 1 Abstract

In the future, it is likely that the elevated flare will remain the only reliable mean for the safe disposal of large amounts of gases and vapours in an emergency. Flaring attracts the attention of combustion scientists since large releases of energetic material continue to be a source of serious fires, explosions, and pollution as a result of incomplete combustion due to extinction of the flame, known as the blow-out phenomenon. The present work reports new experimental findings on the universal non-dimensional formula (experimentally found and validated in 1981 by Kalghatgi [1]) that describes the blow-out stability limit of gaseous non-premixed choked and unchoked jet flames of propane, methane and hydrogen in still air. The suggested extrapolation of the stability curve to cases where the nozzle exit flow is choked at blow-out, and the critical burner diameter for a given gas above which a stable jet flame can exist at any flow rate, have been verified for the first time through the present experimental data.

## References

[1] G.T. Kalghatgi. Combust. Sci. Technol., 26 (1981) 233–239.