# Article information:

On predicting the length, width, and volume of the jet diffusion flame - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S1359431115012363>

# Article summary:

1. The flame length (Lf) and width (Wf) of jet diffusion flames (JDFs) are important for combustion characteristics, design and operation of combustion systems, and risk assessment of fuel.

2. Empirical correlations for Lf and Wf have been proposed in the literature, which take into account the impact of air co-flow velocity (uco).

3. Experiments were conducted to validate theoretical conclusions and develop new correlations for Lf\*, Wf\*, and Vf\* of dimethyl ether JDFs.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “On predicting the length, width, and volume of the jet diffusion flame” is a comprehensive overview of the current research on predicting the dimensions of jet diffusion flames. The article provides an extensive review of existing empirical correlations for flame length (Lf) and width (Wf), as well as analytical solutions for flow field, fuel mass fraction (Yf), Lf, Wf, and flame volume (Vf). Additionally, experiments were conducted to validate theoretical conclusions and develop new correlations for Lf\*, Wf\*, and Vf\* of dimethyl ether JDFs.

The article is generally reliable in its presentation of existing research on predicting the dimensions of jet diffusion flames. The authors provide a thorough review of existing empirical correlations for Lf and Wf, as well as analytical solutions for flow field parameters. Furthermore, experiments were conducted to validate theoretical conclusions and develop new correlations for Lf\*, Wf\*, and VF\* of dimethyl ether JDFs.

However, there are some potential biases in the article that should be noted. For example, while the authors provide an extensive review of existing empirical correlations for Lf and WF, they do not discuss any potential limitations or drawbacks associated with these models. Additionally, while experiments were conducted to validate theoretical conclusions and develop new correlations for LF\*, WF\*, and VF\* of dimethyl ether JDFs, it is unclear whether these results can be generalized to other types of fuels or combustion systems. Finally, while the authors discuss potential safety risks associated with turbulent JDFs due to their flame dimensions, they do not explore any counterarguments or alternative perspectives on this issue.

In conclusion, while “On predicting the length, width, and volume of the jet diffusion flame” provides a comprehensive overview of current research on predicting the dimensions of jet diffusion flames that is generally reliable in its presentation of existing research on this topic; there are some potential biases that should be noted when evaluating this article such as lack discussion about limitations or drawbacks associated with existing empirical models; lack generalizability beyond dimethyl ether JDFs; lack exploration into counterarguments or alternative perspectives regarding safety risks associated with turbulent JDFs due to their flame dimensions.

# Topics for further research:

* Limitations of empirical models for jet diffusion flames
* Generalizability of jet diffusion flame dimensions
* Safety risks of turbulent jet diffusion flames
* Alternative perspectives on jet diffusion flame safety
* Counterarguments to safety risks of jet diffusion flames
* Experimental validation of jet diffusion flame dimensions

# Report location:

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