

To editor:

1. Line 37: Change 'to' to 'of'.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 36 ...constitute a significant portion of VOCs...

2. Line 78: Capital P in Pitts

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 75 ...Finlayson-Pitts et al.,...

3. Figure 1 Schematic: I think you mean 'humidity sensor'. Also "Controller" is missing the 'r' on the end.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

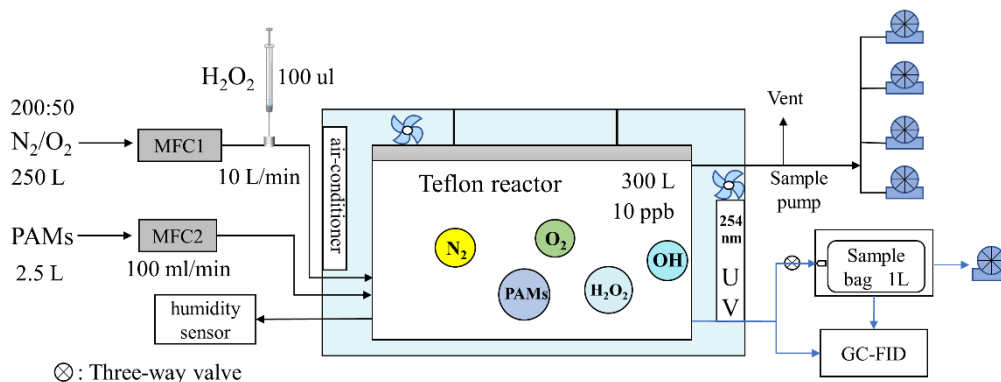


Figure 1. A schematic of the experimental device (MFC: Mass Flow Controller; UV: ultraviolet lamp)

4. Line 127: Delete the word 'that'

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 120: The results indicated ~~that~~ minimal impact...

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5. Line 217, also Line 460: McGillen should have a capital "G".

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 205: ...[McGillen](#) et al., 2020).

6. Line 237: Replace 'by the' with 'of'.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 225: ...values of the database [of McGillen et al.](#)

7. Line 244: Change 'branching' to 'branched'.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 232: For [branched](#) alkanes, for example...

8. Line 340: Delete 'are'.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 327: ...most n-alkanes ~~are~~ fall into the shaded region...

9. Line 410: There is a bracket missing after 340 K.

Reply: I'm sorry for the mistake! Modifications have been made in the revised manuscript.

Line 394: ...(Arrhenius expression: $k(T)=(2.43\pm 0.52)\times 10^{-11} \exp [-(481.2\pm 60)/T]$ at 240-340 K)...

10. Line 440: This would read better as follows: "Fitting our data with evaluated data..."

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 424: ...[Fitting our data with](#) evaluated data (manually...

11. Line 443: I think "for and Arey" can be deleted.

Reply: Thanks for your valuable suggestions! "for and Arey" have been deleted in the revised manuscript (Line 427).

12. Line 461-462: I think this should read as follows: "Compared to the database of McGillen et al. at 240-1464 K, the activation energy (E_a/R) obtained in this work is similar, however, the A-factor obtained (4.48) is about 17% higher."

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 446-448: Compared to the database of McGillen et al. (McGillen et al., 2020) at 240-1464 K, the activation energy (E_a/R) obtained in this work is similar, however, the A-factor obtained (4.48) is about 17% higher.

13. Line 508: It might be better to start a new paragraph for the discussion of the 2-methylhexane data.

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript (Line 494).

14. Line 515: Change "has certain reference value" to "is reliable".

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 502: ...expression is reliable.

15. Line 581: The last sentence would read better as follows: "Longer atmospheric residence times apply for short-chain alkanes compared to long-chain C8-C11 alkanes; for example, propane has a lifetime of about 11 days."

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 567-569: Longer atmospheric residence times apply for short-chain alkanes compared to long-chain C₈-C₁₁ alkanes; for example, propane has a lifetime of about 11 days.

16. Line 600: Change "Whilst" to "Also".

Reply: Thanks for your valuable suggestions! Modifications have been made in the revised manuscript.

Line 587: **Also**, the value of preexponential factor A increases with the increase...