

Dear Prof. Nizkorodov,

Thank you very much for the comments to improve the manuscript. We have made changes accordingly and below are the point-by-point responses.

Thanks again for the help to handle the manuscript.

Best

Chak K. Chan and Yongjie Li

Editor Initial Decision: Publish subject to technical corrections (13 Feb 2014) by Sergey A. Nizkorodov

Comments to the Author:

Dear authors. Congratulations on such a great manuscript. I spotted a few minor things in the text that you may want to correct before the final version appears in ACP.

Page 2, line 15: to be dependent -> to depend

R: changed as suggested.

Page 6, lines 3-4: delete [because of its intermediately volatile nature] (the reason vanillin does not stay in the particle has to do with its lower tendency to polymerize compared to glyoxal, not with its volatility)

R: changed as suggested.

Page 6, line 16: before -> above

R: changed as suggested.

Page 9, line 12: even present -> even if they were present (and also sulfate -> sulfates)

R: changed as suggested.

Page 10, line 10: there is no reason to introduce abbreviation ODEs if it is only used once. I would check the text for occurrence of other abbreviations that are only used one time, and remove them.

R: removed as suggested, together with DBE for double bond equivalency and ABS for ammonium sulfate.

Page 23, line 18: cloud -> cloud water

R: changed to "10 cycles for most cloud water nuclei".

Page 26: if you recorded UVVIS spectra of the solutions after A and B experiments, would it be possible to include the absorption spectra in the supporting information? For example, a figure showing absorption spectrum of the initial solution of vanillin, spectrum of its H₂O₂+UV oxidation products, and spectrum of its UV photolysis products in the same graph? If you did not record such spectra feel free to ignore this suggestion (I do not suggest that you should do additional experiments).

R: unfortunately we did not record such UV-vis spectra.

Page 29, line 31: fix H₂O₂ (subscripts needed)

R: changed as suggested.

Page 29, line 34: fix NO₃⁻ (3 should be subscript, not superscript)

R: changed as suggested.

Figure captions: your captions on page 35 and under the figures do not always match. Please make sure they are the same.

R: undated accordingly.

Best regards,
Sergey Nizkorodov.