

June 7, 2015

Dear Dr. Prof. Nizkorodov,

Enclosed please find our revised manuscript acp-2015-70 entitled "*Heterogeneous reaction of peroxyacetic acid and hydrogen peroxide on ambient aerosol particles under dry and humid conditions: kinetics, mechanism and implications*". We have completed the technical corrections according to your comments. We have uploaded all of the materials to the ACP website.

Many thanks for your comments and time.

Sincerely yours,

Zhongming Chen and co-authors

Comments to the Author:

Technical corrections recommended prior to the ACP publication

L24: than is H₂O₂ -> than H₂O₂ is

A: Done.

L25: ... that of PAA, while the less RH sensitivity of H₂O₂, we suggest... -> ... that of PAA, the smaller RH sensitivity of H₂O₂ uptake coefficient suggests...

A: Done.

L52, L143, L361,: comma needed after "e.g."

A: Done.

R2: oxygen molecule product is missing in reaction R(2)

A: Done.

L56: pathway -> loss

A: Done.

L59: Whereas when -> When

A: Done.

L85: undertake -> use

A: Done.

L114: was 1.3 M, which... -> was 1.3 M. The solution ...

A: Done.

L126: was -> is

A: Done.

L190: the concentration of the molecule number -> the number concentration

A: Done.

L192: the Kelvin temperature -> the temperature

A: Done.

L217: was ultrasonic in ice -> was exposed to ultrasonic treatment in ice

A: Done.

Line 238: both the ... and the BET ... can not ... -> neither the ... nor the BET...
can...

A: Done.

Eq 6: formatting on "ln" is different from that used in the rest of the equations

A: Done.

L259: use -> used

A: Done.

Eqs. 11-13: the unit used for A needs to be specified below the equations

A: Done.

L318: Fig. 6 -> Fig. 6b

A: Done.

L320: if physical -> if a physical

A: Done.

L322: 100 times that -> 100 times longer than that

A: Done.

L409: I do not understand the meaning of "physical dominated"

A: We have changed it as "physical process dominated".

L425: acidic ions -> ions of strong acids

A: Done.

L439: studies -> studied

A: Done.

L464: mineral -> minerals

A: Done.

L484: the chemical processes -> chemical processes

A: Done.

L504: compared with the physical processes, the chemical process dominates ->
chemical processes dominate

A: Done.

L523: against -> with respect to

A: Done.

L600: Anab InitioStudy -> An ab Initio Study

A: Done.

L740: Photoch. Photobio. -> Photochem. Photobiol.

A: Done.

L801: inconsistent capitalization in the title

A: Done.

Figure 1: I included this comment in my initial review but this still remains an issue.

Lines in Figure 1 are so thin that only half of them got printed on my b/w printer.

Consider making the line thickness larger

A: Done.