

acp-2020-1070-RC3-ANSWERS

Comment: Page 6, line 160: are these 1233 molecules or 1233 molecular formulae? For a fair comparison with your acquired data, it should be the latter.

Answer: One should read ‘1233 molecular formulae’; this is corrected in the revision

Comment: In addition, it is not completely clear from the text whether the list of 1233 compounds/molecular formulae only contains formulae that were common to all of the “atmospheric” studies or every formula found in any of the studies. If it is the latter, I think some caveats regarding chemical diversity should be added since precursor concentration can affect the product composition and many of the listed studies are quite far away from atmospheric concentrations in this regard.

Answer: The list of 1233 compounds/molecular formulae corresponds to a set of every formula found in any of the studies found in the literature. This is corrected in the revision.

To address the second point, we revised the statement in question: “These nine experimental studies performed under diverse initial conditions, as shown in Table 1, yielded a first set of 1233 molecular formulae for an inventory which, although incomplete, gives a broad representativeness of the chemical products which can result from limonene ozonolysis and OH-initiated photooxidation.

Comment: Page 7. Line 169: relative to what? I’m assuming it is supposed to be relative to the peak maximum of the highest mass peak in the spectrum, but this should be stated explicitly.

Answer: It was stated “*Chemical formula with relative intensity was less than 1 ppm were not considered*”. To address this point, the revised sentence reads: “Chemical formula with relative intensity to the peak maximum of the highest mass peak in the spectrum less than 1 ppm were not considered.”

Comment: Page 10, line 249: could you elaborate a bit more about how you arrived at your compound family classification here? Especially since the limits you are setting seem to differ from the cited Bianco et al. regarding e.g. the aromatic structures.

Answer: There is an inversion on the legends b and c of figure 3. The correct legend is (b) unsaturated hydrocarbons; (c) aromatics hydrocarbons; this is corrected in the revision.