

Interactive comment on “Effect of thermodenuding on the structure of nascent flame soot aggregates” by Janarjan Bhandari et al.

Anonymous Referee #1

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Dear Authors,

For further discussion the following is needed:

1. A strong motivation, why pure (not covered in any substances) soot particles should get restructured after thermodenuding, is needed. It is not clear which processes should restructure soot agglomerates when it is heated with no other treatment. Moreover, soot vaporization temperature is approximately 4000K. Meaning that soot particles should remain stable at temperatures provided in this study.
2. Authors state: "In other words, if thermodenuding is used to remove the coating material of atmospheric soot-containing particles, and if the denuding process artificially restructures the soot, then the measured effect would be a combination of the “natural” compaction due to the coating (either during condensation or evaporation) plus

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the “artificial” restructuring induced by the thermodenuder". I believe that the first part of this statement refers to previous studies on soot restructuring due to coating. The unclear part here is "...plus the “artificial” restructuring induced by the thermodenuder". In coating and denuding scenario, it is not clear why so called "artificial" restructuring should occur when the restructuring already occurred due to surface tension effects?

3. Authors state: "However, we feel it is a key information for the correct interpretation of ambient measurements". Can authors provide instances (references) when ambient measurements showed existence of pure, non-coated soot particles in the atmosphere? And when thermodenuding might have caused errors in estimating particle optical properties.
4. Studies on soot restructuring after particles were coated with other materials are plentiful. What are expected errors in light extinction due to restructuring?

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-270, 2016.

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