

In recent years, brown carbon is attracting more concerns due to its potential climate impacts. In this paper, the authors conducted a series of experiments covering various types of solid fuels, and discussed the light absorption properties of aerosol samples from these solid fuels based on chemical compositions on a molecular level. This study provides a wealth of information, and the molecular-level analyses of chemical compositions are pretty valuable for future studies. The scientific discussions are also of high quality. I recommend the publication of this manuscript if the following comments can be addressed.

1. Suggest using “WIOC” instead of using “WISOC” throughout the paper, as the former is already widely used and accepted.
2. Line 22-23: “sulfur-containing compounds (CHOS+CHONS, SOCs)”: I suggest the authors use “SOCs; including CHOS and CHONS” to make the definition easier to follow.
3. Line 30: high -> higher;
4. Lines 58-59: this sentence needs re-writing.
5. Lines 76-77: I assume the authors mean "fourteen types of coals, five types of biomass pellet, and twelve types of raw biomass"? Or numbers of samples? Please clarify.
6. Lines 80-81: I think the authors want to say the system is "equipped with monitor", but this sentence is not comfortable for reading in the current way it's written, i.e., equipped with pollutants? Suggest re-writing.
7. Line 92, “a 4.9 cm² was extracted...” I assume the authors mean the filter sample here?
8. Lines 100-101, the determination of OC: was the OC measured using the same 4.9 cm² filter sample used for WSOC extraction? The authors need to clarify.
9. Lines 121-122: two “selected” in the same sentence, please modify.
10. Line 159: “in the range of 6.6±0.5 m²/g”... are these the highest and lowest values in this range, or the average?
11. Line 166: “soluble OC”? Does it mean water-soluble, or methanol-soluble OC? I would assume the authors mean methanol-extracted OC in this study, as the authors were just

discussing the MAE of WISOC in the previous sentence. Similar problem existed in Line 201, the "soluble BrC". Please clarify.

12. Lines 241-243, figure 2 captions: what do "TS" and "IS" stand for in the figure?

The authors are suggested to modify all the figure captions, to provide clear, detailed descriptions of the figure information.

13. The abbreviation of sulfur-containing compounds: sometimes the authors use SOCs, sometimes SOC (e.g., Lines 269, 272, and 283, etc.). Please keep consistent throughout the paper.

Similar problem exist for "CRAMS", sometimes CRAMS, sometimes CRAMs.

14. Line 310: this is the first time the abbreviation of DBE occurred, please define.