

## ***Interactive comment on “Sources and oxidative potential of water-soluble humic-like substances (HULIS<sub>WS</sub>) in fine particulate matter (PM<sub>2.5</sub>) in Beijing” by Yiqiu Ma et al.***

### **Anonymous Referee #2**

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It's well known that the toxicity of PM<sub>2.5</sub> is greatly related to its chemical composition and pollution sources. This work analyzed PM<sub>2.5</sub> samples collected in Beijing during a one-year period, and the levels and oxidative potential (indicated by DTT) of a major water-soluble PM<sub>2.5</sub> component, i.e. water-soluble humic-like substances (HULISWS), were reported. With the aid of various characteristic source tracers, PMF was applied to apportion the major sources of both HULISWS and its associated DTT activity. There are some new and interesting findings. The major sources of both HULISWS and DTT activity were coal combustion, biomass burning, traffic exhaust, waste incineration, and secondary formation. Waste incineration was probably identified as a contributor to HULISWS for the first time. Moreover, HULISWS from vehicle emissions was found as

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the most ROS-active, and HULISWS from secondary aerosol formation showed a lower intrinsic DTT ability than those of most primary sources except for coal combustion. This paper is well-written. The study is clear, informative, and novel in general, and the major data and their interpretation are scientifically sound. I suggest it to be considered by ACP for publication if the following concerns could be addressed. Line 22: Is it necessary to define the waste as “plastic waste”, as terephthalic acid is a marker of plastics? Line 39-40: Add “an” before electron and “a” before continuous. Line 71: If the samples were taken every 6 days for a one-year period, there should be 60 samples. Why there were 66 samples as listed in line 123? Line 100: How many individual hopanes have been identified? I guess the input species “hopane” in PMF must be the sum of all identified hopanes, right? What are the concentrations of hopanes? What are the water-soluble ions identified? The author may need to include a table in the supplementary information that provide levels of hopanes, water-soluble ions, EC and OC in the batch of PM<sub>2.5</sub> samples analyzed. Line 108: DTPA was spiked to chelate transition metals. Could it also affect or even remove some HULISWS components? Lines 130 to 131: Were all the reference data observed during a one-year period and comparable to present study?

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