

# ***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 PM2.5 is greatly related to its chemical composition and pollution sources. This work analyzed PM2.5 samples collected in Beijing during a one-year period, and the levels and oxidative potential (indicated by DTT) of a major water-soluble PM2.5 component, i.e. water-soluble humic-like substances (HULIS<sub>WS</sub>), were reported. With the aid of various characteristic source tracers, PMF was applied to apportion the major sources of both HULIS<sub>WS</sub> and its associated DTT activity. There are some new and interesting findings. The major sources of both HULIS<sub>WS</sub> and DTT activity were coal combustion, biomass burning, traffic exhaust, waste incineration, and secondary formation. Waste incineration was probably identified as a contributor to HULIS<sub>WS</sub> for the first time. Moreover, HULIS<sub>WS</sub> 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 idenfied? 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 PM2.5 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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