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***Interactive comment on* “Functional group composition of ambient and source organic aerosols determined by tandem mass spectrometry” by J. Dron et al.**

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Reply to Anonymous Referee n°2

We thank anonymous referee #2 for the useful comments and suggestions.

Specific Comments

1- Reference will be updated. The suggested reference (Russel et al. 2009) will be added, and the part of the sentence indicating difficulties in separating carboxylics from carbonyls updated (see also reply to ref. 1, specific comments 1-).

2- As no other sources are justified at this stage of the paper, we prefer not to develop

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the choice of o-xylene as SOA precursor in this section. In addition o-xylene SOA is not considered along the paper as representative of the whole SOA. We consider o-xylene SOA more as a fair proxy of anthropogenic SOA in our specific conditions. We totally agree that this SOA system is not sufficient to represent the complexity of SOA. The aim of the paper is to present a first application of new analytical methods to characterize the OA and the potential of these methods in the study of OA sources. This is a first approach. Unfortunately, for now, we do not have access to other SOA systems samples. We are obviously very interested by such samples to complete the data set and improve this approach. We think that this lack is clearly pointed out along the paper. Some sentences will be modify in order avoid misleading interpretations (see response to comment 3-).

3- The sentence pointed out (p. 9267 lines 4-8) proposes that the photo-oxidation of o-xylene is a fair approximation of SOA formation in the conditions of the campaign. One might consider this assumption as unsafe regarding that numerous VOCs are involved in SOA formation, and that also numerous processes rule the SOA formation. As precised in the latter comment, the paper presents first results of the application of new analytical methods in the study of OA and does not pretend to offer a full integration of all SOA parameters. Several corrections have been brought concerning this point (see reply to ref. 2, specific comments 2-; reply to ref. 1, specific comments 4- and 5-). In addition, p. 9268 lines 7-12 explain that it cannot be assessed that photo-oxidation of o-xylene is representative of urban SOA. It is also indicated that quantitative SOA functional group data is lacking. However, we propose to modify this sentence as follow (p. 9267 lines 4-8): “In a first approach, the functional groups fingerprint derived from the of o-xylene is considered here as a fair approximation for SOA in such conditions”

4- The fit of the lines (Figure 3 p. 9288) is explained in the text (p. 9267 lines 12-13). The explanation will be added in the legend of Fig. 3. The fits are curved because the figure is represented in a log-log scale. This is indicated in the legend of fig. 3.

Technical corrections

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1- The authors agree with this remark. Functionalisation rate is defined on p 9260 (see reply to ref. 1, technical corrections 2-)

2- Analytical deviations are defined in section 2.2. (see reply to ref. 1, specific comments 2-). A reference to section 2.2. will be added in the legend of fig. 2 (p. 9287).

3- Axis labels will be centered.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 9253, 2010.

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