



*Supplement of*

## **Aqueous phase oligomerization of methyl vinyl ketone through photooxidation – Part 1: Aging processes of oligomers**

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**Table S1:** Determination of particle transmission efficiency in the particle generation system

Compound	Range of aqueous phase concentration ( $\text{mg L}^{-1}$ )	Range of particle mass concentration after nebulization ( $\mu\text{g m}^{-3}$ )	Particle density ( $\text{g cm}^{-3}$ )	Transmission efficiency (%)
Succinic acid	50 - 2000	20 - 1300	1.56	13.1 ( $\pm 2.6$ )
$\text{NH}_4\text{NO}_3$	30 - 3000	10 - 4500	1.73	17.2 ( $\pm 7.9$ )
NaCl	50 - 2000	100 - 4000	2.17	44.6 ( $\pm 2.3$ )

In order to determine the SOA mass yield of the nebulized MVK-solutions, the transmission efficiency of our experimental setup was determined using aqueous solutions of NaCl,  $\text{NH}_4\text{NO}_3$  and succinic acid, with large ranges of concentrations, covering those of the oligomers formed from MVK photooxidation. For each solution nebulized in the system, using the corresponding densities and the number size distribution measured by the SMPS, the total particle mass was determined. The resulting linear regressions obtained between the particle mass concentration and the solution concentration are given in Table S1. The observed differences may be due to the different physical properties of the particles (e.g. volatility and hygroscopicity) linked to their chemical composition. For the calculation of the SOA mass yields, we chose the calibration performed with  $\text{NH}_4\text{NO}_3$  nebulized solutions.