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## Volatile particles formation during PartEmis: a modelling study

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**Abstract.** A modelling study of the formation of volatile particles in a combustor exhaust has been carried out in the frame of the PartEmis European project. A kinetic model has been used in order to investigate nucleation efficiency of the H<sub>2</sub>O-H<sub>2</sub>SO<sub>4</sub> binary mixture in the sampling system. A value for the fraction  $\epsilon$  of the fuel sulphur S(IV) converted into S(VI) has been indirectly deduced from comparisons between model results and measurements. In the present study,  $\epsilon$  ranges between roughly 2.5% and 6%, depending on the combustor settings and on the value assumed for the parameter describing sulphuric acid wall losses. Soot particles hygroscopicity has also been investigated as their activation is a key parameter for contrail formation. Growth factors of monodisperse particles exposed to high relative humidity (95%) have been calculated and compared with experimental results. The modelling study confirms that the growth factor increases as the soot particle size decreases.

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