Supporting Information to:

“Rotationally inelastic scattering of O$_3$–Ar:
State-to-state rates with the MultiConfigurational
Time Dependent Hartree method”

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Figure S1 shows the population for $J_{tot}=25$ as a function of time with 40 SPF basis for 666 and 668 O$_3$–Ar systems. Left figure represents the population for the $^{16}\text{O}^{16}\text{O}^{16}\text{O}$–Ar and right figure represents that of $^{16}\text{O}^{16}\text{O}^{18}\text{O}$–Ar.

Figure S1: For $J_{tot}$=25, natural population of the SPF as a function of time for $^{16}\text{O}^{16}\text{O}^{16}\text{O}$–Ar on the left and $^{16}\text{O}^{16}\text{O}^{18}\text{O}$–Ar on the right.

The close correspondence of the computed and interpolated transition probabilities for some of the transitions for different $J_{tot}$ are represented in the figures below for the two systems.
Figure S2: Comparison of the calculated and interpolated transition probability for different values of $J_{tot}$ for a $0_{00} \rightarrow 1_{11}$ transition for 666 (left) and 668 (right) $O_3$–Ar.

Figure S3: Comparison of the calculated and interpolated transition probability for different values of $J_{tot}$ for a $0_{00} \rightarrow 2_{02}$ transition for 666 (left) and 668 (right) $O_3$–Ar.
Figure S4: Comparison of the calculated and interpolated transition probability for different values of $J_{tot}$ for a $0_{00} \rightarrow 3_{22}$ transition for 666 (left) and 668 (right) O$_3$–Ar.

Figure S5: Comparison of the calculated and interpolated transition probability for different values of $J_{tot}$ for a $0_{00} \rightarrow 4_{04}$ transition for 666 (left) and 668 (right) O$_3$–Ar.
Figure S6: Comparison of the calculated and interpolated transition probability for different values of $J_{tot}$ for a $0_{00} \rightarrow 5_{15}$ transition for 666 (left) and 668 (right) $O_3$–$Ar$. 
Figure S7: Behavior of several example cross-sections vs. energy as a function of $J_{\text{max}}$ between 180 and 200. We plot cross sections against energies up to 1000 cm$^{-1}$ and in all cases find the cross-sections already well converged with $J_{\text{max}} = 180$. Upper panel: $0_00 \rightarrow 1_{11}$ transition. Middle panel: $0_00 \rightarrow 3_{22}$ transition. Lower panel: $0_00 \rightarrow 4_{13}$ transition.