

## Total Radical Yields from Tropospheric Ethene Ozonolysis

### Supplementary Table S1

**Table 1:** Extension of the MCMv3.1 cyclohexane chemistry used to model the scavenger chemistry in the O<sub>3</sub>-ethene chamber simulations: Dark, NO<sub>x</sub> free cyclohexoxy radical chemistry. Species definition as in Figures 3a and b and <http://mcm.leeds.ac.uk/MCM>.

Reaction	Rate coefficient
CHEXO → CO1C6O2	$3.80 \times 10^{13} \cdot \exp^{(-6026/T)}$
CHEXO → CYHEXONE + HO <sub>2</sub>	$2.50 \times 10^{-14} \cdot \exp^{(-300/T)} \times O_2$
CO1C6O2 + HO <sub>2</sub> → CO1C6OOH	$2.91 \times 10^{-13} \cdot \exp^{(1300/T)} \times 0.770$
CO1C6O2 → CO1C6O	$1.30 \times 10^{-12} \times 0.6$
CO1C6O2 → CO1C6OH	$1.30 \times 10^{-12} \times 0.2$
CO1C6O2 → C6DIAL	$1.30 \times 10^{-12} \times 0.2$
CO1C6O → CO1H63O2	$1.00 \times 10^6$
CO1H63O2 + HO <sub>2</sub> → CO1H63OOH	$2.91 \times 10^{-13} \cdot \exp^{(1300/T)} \times 0.770$
CO1H63O2 → CO1H63O	$2.50 \times 10^{-13} \times RO_2 \times 0.6$
CO1H63O2 → CO1H63OH	$2.50 \times 10^{-13} \times RO_2 \times 0.2$
CO1H63O2 → C6COHOCHO	$2.50 \times 10^{-13} \times RO_2 \times 0.2$
CO1H63O → C6DIALOH + HO <sub>2</sub>	$1.00 \times 10^6$
CO1C6OH + OH → C6DIAL + HO <sub>2</sub>	$3.31 \times 10^{-11}$
CO1C6OOH + OH → C6DIAL + OH	$4.22 \times 10^{-11}$
CO1H63OH + OH → C6COHOCHO + HO <sub>2</sub>	$3.89 \times 10^{-11}$
CO1H63OOH + OH → C6COHOCHO + OH	$4.80 \times 10^{-11}$
C6DIALOH + OH → C6CODIAL + HO <sub>2</sub>	$8.03 \times 10^{-11} \times 0.44$
C6DIALOH + OH → C1H4C5CO3	$8.03 \times 10^{-11} \times 0.56$
C1H4C5CO3 + HO <sub>2</sub> → C1H4C5CO3H	$4.30 \times 10^{-13} \cdot \exp^{(1040/T)} \times 0.41$
C1H4C5CO3 + HO <sub>2</sub> → C1H4C5CO2H	$4.30 \times 10^{-13} \cdot \exp^{(1040/T)} \times 0.15$
C1H4C5CO3 + HO <sub>2</sub> → CHOC4OHO2 + OH	$4.30 \times 10^{-13} \cdot \exp^{(1040/T)} \times 0.44$
C1H4C5CO3 → CHOC4OHO2	$1.00 \times 10^{-11} \times RO_2 \times 0.7$
C1H4C5CO3 → C1H4C5CO2H	$1.00 \times 10^{-11} \times RO_2 \times 0.3$
C1H4C5CO3H + OH → C6COALCO3H + HO <sub>2</sub>	$4.08 \times 10^{-11}$
C1H4C5CO2H + OH → C6COALCO2H + HO <sub>2</sub>	$3.77 \times 10^{-11}$