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Night-time atmospheric degradation of a series of butyl methacrylates

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Abstract

Rate coefficients for the reactions of NO₃ with *n*-butyl methacrylate (k_1), *iso*-butyl methacrylate (k_2) and *tert*-butyl methacrylate (k_3) have been determined at 298 K and atmospheric pressure using the relative method. The rate coefficients ($\times 10^{-15}$ cm³ molecule⁻¹ s⁻¹) were obtained for the first time as: $k_1 = (5.5 \pm 2.6)$, $k_2 = (5.8 \pm 2.8)$ and $k_3 = (5.6 \pm 2.5)$.

The NO₃ reactions of these compounds could contribute to the removal of NO_x and as NO_y reservoirs. The potential importance for the tropospheric nitrogen budget of these reactions is discussed and atmospheric lifetimes for the butylesters are calculated.

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