PHOTOCHEMISTRY OF ACETONE IN SIMULATED ATMOSPHERE

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Acetone has been identified to be one of the dominant non-methane organic species present in our atmosphere with an annual budget of $\sim 40-60\ Tg\ (10^{12}\ g)$. It has been proposed that the major fraction of atmospheric acetone ($\sim 65\%$) is removed via photodissociation channel. Numerous laboratory investigations were devoted in the past to understand how the reactions are evolved in presence of oxygen and water vapour. Our recent study, wherein the photo products are probed using a tandem methodology of quadrupole mass spectrometry and gas-phase infrared spectroscopy reveals that a significant fraction of acetone is converted to formic acid in presence of oxygen when exposed to ultraviolet light of wavelengths available in troposphere. The measurement has been repeated with other linear and cyclic ketones and some of their deuterated analogues. The details of our findings will be presented in the talk.