



Interaction of formic acid with ice surfaces

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Formic acid is ubiquitous in the troposphere and can be found at ppbv levels even in the upper troposphere where it is a temporary reservoir of HO_x. The sources and sinks of formic acid are associated with large uncertainty and both gas-phase and heterogeneous processes may be important. Ice surfaces are abundant in the upper troposphere in the form of cirrus clouds and are believed to impact on the concentrations of strong acids. In this work a low temperature flow reactor coupled with trace gas detection by chemical ionisation mass spectrometry is used to examine the interaction of formic acid with cold ice surfaces representative of cirrus. Such studies enable us to calculate the equilibrium gas-ice partitioning of this trace gas, and to improve our understanding of the mechanism and energetics of such processes.