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Comparison of Gas and Adsorbed Phase Photoemission Spectra of C₃H_xO on Ice at -45°C

We present results of gas phase and adsorbed phase XPS and NEXAFS spectra of 1-propanol, 2-propanol, acetone, and 1-propanal on ice at -45°C using synchrotron based, ambient pressure X-ray photoemission spectroscopy. Uptake experiments give rise to Langmuirian isotherms. The two alcohols and acetone show little difference in the photoemission spectra between the gas phase and adsorbed phase, suggesting that adsorption occurs molecularly. However, adsorption of 1-propanal shows evidence of oxidation to an organic acid. Further studies are needed to understand this adsorption behavior.

Please list some keywords

Laboratory, adsorption, trace gas, organics

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