

## [SP-13]

### Adsorption of chloroethylenes on Si(001)2×1 surfaces

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Adsorption of three chloroethylenes [cis-1,2-dichloroethylene (HCIC=CHCl); trans-1,2-dichloroethylene; tetrachloroethylene( $\text{Cl}_2\text{C}=\text{CCl}_2$ )] on Si(001)2×1 at room temperature(RT) has been investigated by photoelectron spectroscopy using synchrotron radiation. After chloroethylenes saturation at room temperature, cis- and trans -1,2-dichloroethylene the  $\text{C}_{1s}$  core-level spectra exhibit only a single component but tetrachloro ethylene appear two components contributed by carbon atoms in C-Cl and C-Si, while the  $\text{Si}_{2p}$  core-level spectra shows two new surface components, which is expected in Si-C and Si-Cl state. According to the valence band spectra, we observed three peaks at near 3.2 eV ( $\sigma_{\text{Si-C}}$ ), 5.9 eV ( $\pi_{\text{C-C}}$ ) and 12.3 eV ( $\sigma_{\text{C-C}}$ ). These studies illustrates that the important roles of molecular symmetry and Cl content of the adsorbate on the RT chemisorption of chloroethylenes on Si(100)2×1, which ultimately control the surface chemistry of these important unsaturated chlorinated hydrocarbons.