

Figure 1: (a) Infrared absorbance change for a SiN_x (green) and SiO_2 (blue) surface after exposure to benzaldehyde at a substrate temperature of 70°C . (b) Representative schematic of the SiN_x and SiO_2 surface after exposure to benzaldehyde showing extremely high selectivity in attachment to a SiN_x surface.

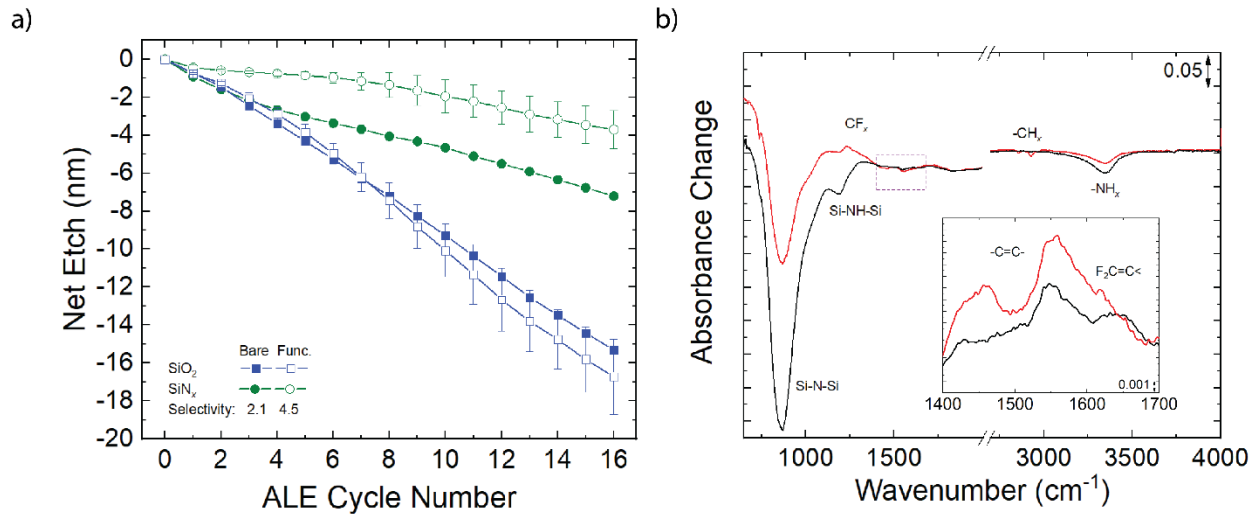


Figure 2: (a) Calculated net etch of SiO_2 and SiN_x surfaces as a function of ALE cycle number. The closed symbols (\bullet) and (\blacksquare) represent the net etch for ALE on bare SiN_x and SiO_2 , respectively. The open symbols (\circ) and (\square) represent the net etch for ALE on benzaldehyde exposed SiN_x and SiO_2 , respectively. The legend also contains the calculated SiO_2 : SiN_x etch selectivity for a target SiO_2 etch of ~ 15 nm. (b) Infrared absorbance change for the 16 ALE cycles on bare (black) and benzaldehyde functionalized (red) SiN_x referenced to the SiN_x surface immediately prior to the first ALE half-cycle. The inset shows an enhanced view of the $1400\text{--}1700\text{ cm}^{-1}$ region which contains stretching vibrations from sp^2 -hybridized C with varying degrees of fluorination.