IR-ERS spectra of 8 deposition cycles of DR and PSS-coated ZrO₂ on silicon wafer (Bruker IFS 66v)

Two apparent adsorption peaks at 2219 cm⁻¹ and 2162 cm⁻¹ were derived from the vibration of -N≡N⁺ group of diazo-resin before UV irradiation. After UV irradiation, diazonium group decomposes and the two peaks disappear. Another two adsorption peaks at 1582 cm⁻¹ and 1173 cm⁻¹ attributed to the vibration of –C=C- of phenyl and diazonium group complex with sulfonate group respectively shifted from 1582 cm⁻¹ to 1652 cm⁻¹ and from 1173 cm⁻¹ to 1163 cm⁻¹, indicating clearly the form of crosslink structure between DR and PSS-coated ZrO₂.

Reference