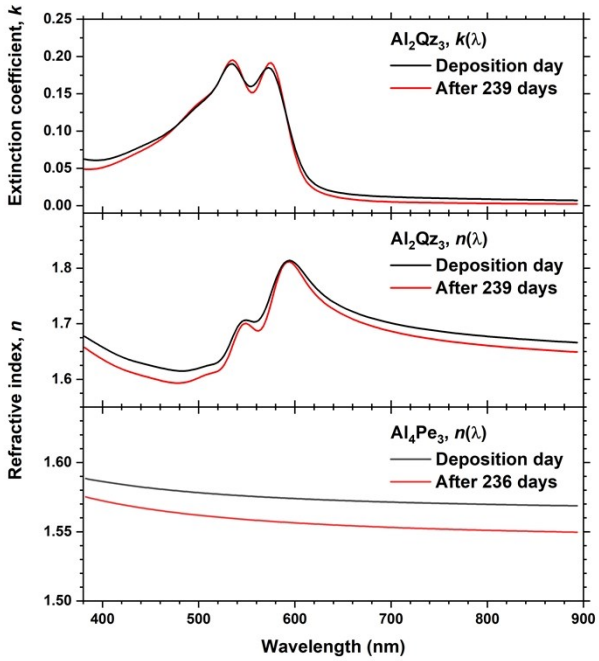
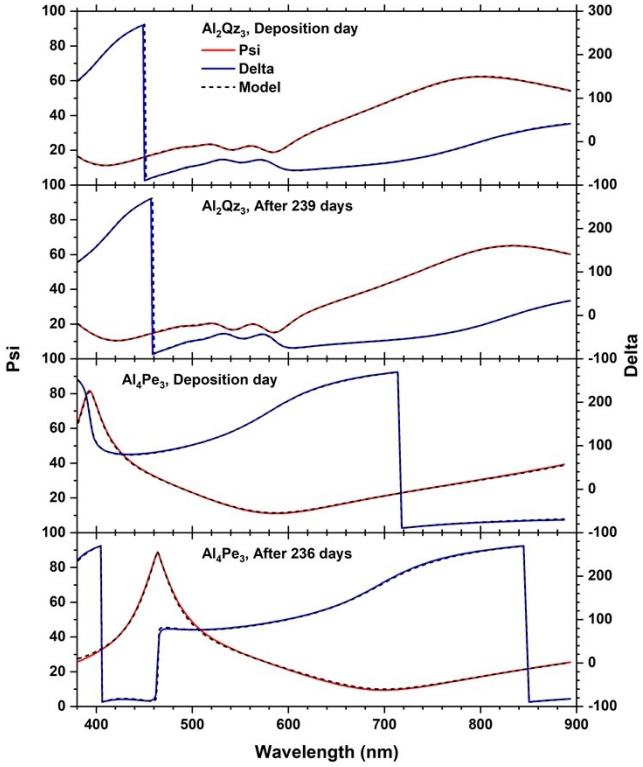
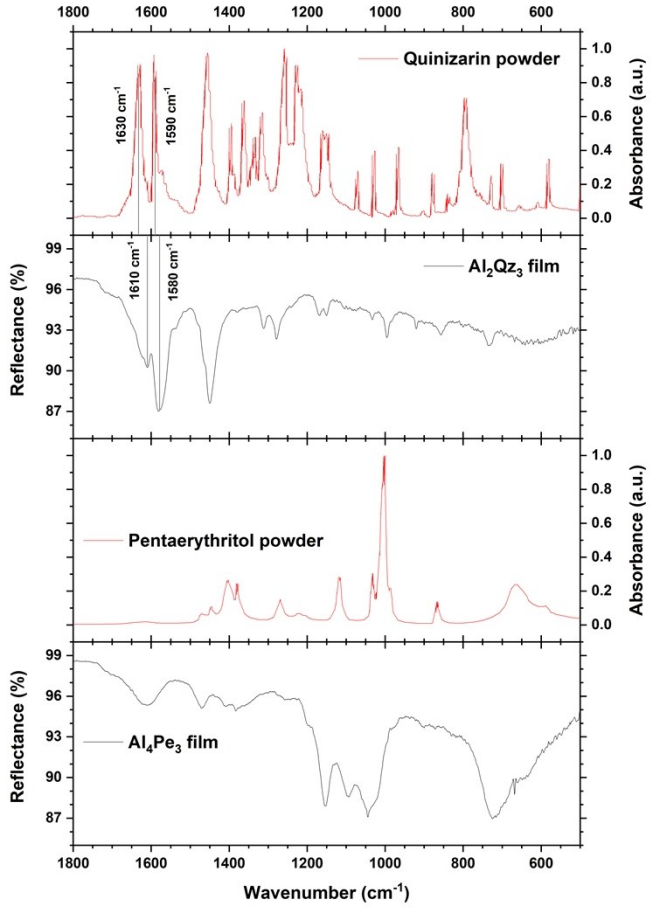
Supplementary information



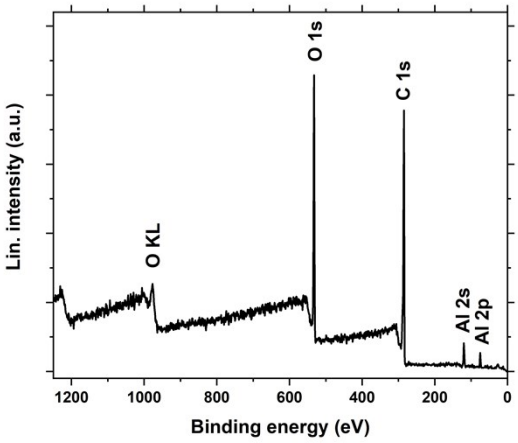
Supplementary figure 1: Ellipsometry modelling of Al_2Qz_3 and Al_4Pe_3 films on silicon on the day of deposition and after 239 and 236 days, respectively.



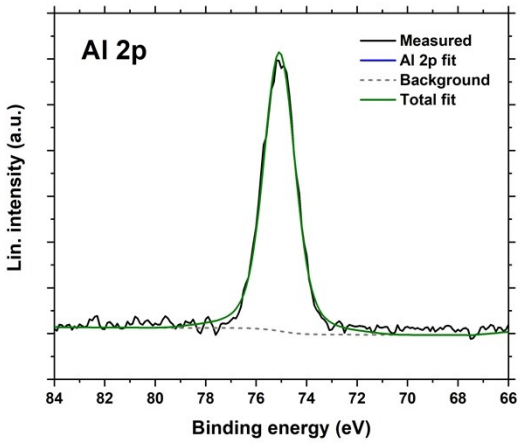
Supplementary figure 2: Ellipsometry general oscillator model fits for the Al_2Qz_3 (with 5 gaussian peaks in the visible range) and Al_4Pe_3 films on silicon.



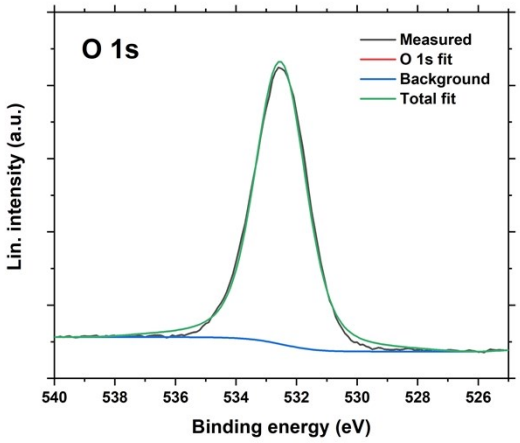
Supplementary figure 3: FTIR data for Al_2Qz_3 and Al_4Pe_3 films on steel substrate and quinizarin and pentaerythritol in KBr pellet, zoomed in to easier identify peaks. The position of the two strongest carbonyl peaks around 1600 cm^{-1} is numbered.



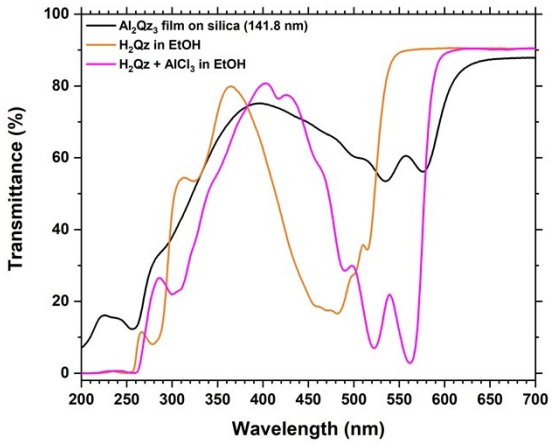
Supplementary figure 4: XPS Survey scan.



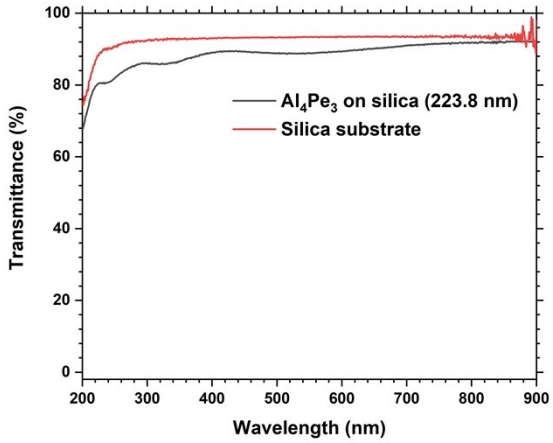
Supplementary figure 5: XPS Al 2p peak.



Supplementary figure 6: XPS O 1s peak.



Supplementary figure 7: UV-Vis transmission of an Al_2Qz_3 film compared to an ethanolic solution of H_2Qz with and without added Al^{3+} from $AlCl_3$.



Supplementary figure 8: UV-Vis transmission spectrum of an Al_4Pe_3 film on silica substrate. The waves seen are interference in the film.