



**Figure 1.** Contours of the S4 Surface at O-H-Cl angles of (a)  $10^\circ$ , (b)  $80.4^\circ$ , (c)  $131.4^\circ$ , and (d)  $180^\circ$ . The dashed contour lines represent negative values with respect to the asymptotic entrance channel minimum. The contours are drawn at  $-5, -3, -1$  kcal/mol and in increments of 5 kcal/mol from 5 to 100 kcal/mol in panel (a) and 5 to 70 kcal/mol in the other three panels.