Calcium dioxodiaquaperoxyoxalatouranate(VI) dihydrate was obtained by reaction of uranyl nitrate with oxalic acid and then hydrogen peroxide in the presence of a calcium ion. The complex was subjected to chemical analysis. The thermal decomposition behavior of the complex was studied using thermo-gravimetric, differential thermal analysis and differential thermo-gravimetric techniques. The solid complex salt and the intermediate product of thermal decomposition were characterized using infrared absorption and X-ray diffraction spectra. Based on the data from these physico-chemical investigations the structural formula of the complex was proposed as Ca[UO$_2$(O$_2$)(C$_2$O$_4$)(H$_2$O)$_2$]$_2$H$_2$O.