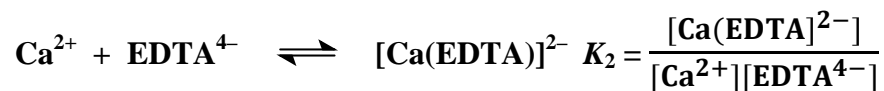


- Derive expressions for the equilibrium constants for the complexation of Pb^{2+} (K_1) and of Ca^{2+} (K_2) by EDTA^{4-} .



Briefly explain why the chelating agent, EDTA, is administered as $[\text{Ca}(\text{EDTA})]^{2-}$ to treat lead poisoning and determine which of K_1 or K_2 must be greater for the therapy to be effective.

K_1 must be greater than K_2 for the therapy to be effective.

$[\text{Ca}^{2+}]$ is much greater than $[\text{Pb}^{2+}]$ in the body, so need $K_1 > K_2$ to form the Pb complex. If EDTA is not administered as the Ca complex, it will strip Ca^{2+} from the body.