The simplest and most common stopping criteria in iterative solution of $Ax = b$ are based on the absolute and relative residual: $||r_i|| \leq \epsilon$ or $||r_i|| \leq \epsilon||b||$, where r_i is the residual $r_i = b - Ax_i$ related to the i:th iteration. However, it is not always true that small residual implies small relative error $||x - x_i||/||x||$. Therefore the most preferred stopping criteria would be $\kappa(A)||r_i|| \leq \epsilon||b||$, where $\kappa(A)$ is the condition number of A. If A is symmetric and positive definite, then $\kappa(A) = \lambda_{\text{max}}/\lambda_{\text{min}}$. The nice thing with the conjugate gradient method is that we can get with minimal computational effort estimates for the extreme eigenvalues $\lambda_{\text{min}}, \lambda_{\text{max}}$ of A.