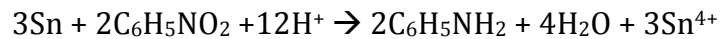


Challenge Problem

Nitrobenzene $\text{C}_6\text{H}_5\text{NO}_2$ ($123.11 \text{ g mol}^{-1}$) is quantitatively reduced to aniline $\text{C}_6\text{H}_5\text{NH}_2$ ($\text{FM}=93.12 \text{ g mol}^{-1}$) with metallic tin:



A 0.578 g sample of impure nitrobenzene was treated with 1.044g tin. When the reaction was complete, the residual tin was found to weigh 0.338 g. Calculate the percent of nitrobenzene in the original sample.