Synthesis of Primary Amines (The Gabriel Synthesis)

Reaction:

\[
\begin{align*}
\text{Br} & \quad \xrightarrow{1) \text{N-O}} \quad \text{/ KOH, EtOH} \\
& \quad \xrightarrow{2) \text{H}_3\text{O}^+, \text{heat}} \\
& \quad \xrightarrow{3) \text{Neutralization}} \\
\text{NH}_2
\end{align*}
\]

Mechanism:

The Gabriel synthesis provides a primary amine after hydrolysis of the imide in either acid or base media. In the mechanism shown above the hydrolysis is carried out in acidic media. Hydrolysis under basic conditions provides the amine without the need of a neutralization step.