Aspirin can be made in the laboratory by reacting acetic anhydride \((C_4H_6O_3)\) with salicyclic acid \((C_7H_6O_3)\) to form aspirin \((C_9H_8O_4)\) and acetic acid \((HC_2H_3O_2)\).

In a laboratory synthesis a student begins with 5.4 g of acetic anhydride and 2.08 g of salicyclic acid. Once the reaction is complete, the student collects 2.01 g of aspirin. Determine the limiting reactant, theoretical yield of aspirin, and percent yield for the reaction.

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\begin{align*}
\text{Limiting reactant is } C_7H_6O_3 \\
\text{Theoretical Yield} = 2.71 \text{ g } C_9H_8O_4 \\
\% \text{ yield} = \frac{\text{Actual}}{\text{Theoretical}} \times 100 \\
\therefore \% = \frac{2.01}{2.71} \times 100 = 74 \%
\end{align*}
\]