Step 1: PRE-TREATMENT
The waste cooking oil is pre-treated to remove any water and food particles. This is often done through filtration and heating. The oil needs to be as pure as possible because water and food particles can interfere with the transesterification reaction.

Step 2: TRANSESTERIFICATION
The waste cooking oil (which is a triglyceride) is reacted with an alcohol (usually methanol) in the presence of a catalyst (usually a strong base such as sodium or potassium hydroxide).

\[ \text{Triglyceride} + 3 \text{ Methanol} \rightarrow \text{Glycerol} + 3 \text{ FAME (biodiesel)} \]

The reaction breaks down the triglyceride into \textit{glycerol} and \textit{fatty acid methyl esters} (FAME), which are the main constituents of biodiesel.

Step 3: SEPARATION
After the reaction is complete, the mixture is allowed to settle. The biodiesel floats to the top because it is less dense than the glycerol. The two layers are then separated.

Step 4: PURIFICATION
The biodiesel is washed to remove any remaining catalyst and dried to remove any excess alcohol or water.

Step 5: QUALITY TESTING
The final step is to test the biodiesel to make sure it meets the necessary quality standards.

Are you getting fair market value for your business’s waste fryer oil? Our dashboard makes it easy to keep track of your oil collection and waste oil credits.

Call (404) 419-6887 To Learn More!