



HEALTH EFFECTS TESTING

History

In June 2000, biodiesel became the first and only alternative fuel to have successfully completed the Tier I and Tier II Health Effects testing requirements of the Clean Air Act Amendments of 1990. The biodiesel industry invested more than two million dollars and four years into the health effects testing program with the goal of setting biodiesel apart from other alternative fuels and increasing consumer confidence in biodiesel.

Testing

The first tier of health effects testing was conducted by Southwest Research Institute and involved a detailed analysis of biodiesel emissions. Tier II was conducted by Lovelace Respiratory Research Institute, where a 90-day sub-chronic inhalation study of biodiesel exhaust at three different diluted concentrations with room air (high, middle, low) with specific health assessments was completed.

Results

Results of the health effects testing concluded that the middle exhaust concentration—which is a far higher level of exhaust concentration than would ever be observed in the field—was the No Observable Adverse Effects Level (NOAE) indicating biodiesel exhaust poses no threat to human health. In addition to showing reductions in particulate matter, a known health threat that aggravates asthma and other ailments, the findings showed a reduction in cancer cause compounds. The exhaust emissions of *aromatic compounds* known as polycyclic aromatic hydrocarbons (PAH) and nitrated polycyclic aromatic hydrocarbons (nPAH) were substantially lower. Most PAH compounds were reduced by 75% to 85%. All nPAH compounds were reduced by at least 90%.

Significance

The health effects testing results provide conclusive scientific evidence using the most sophisticated technology available to validate the existing body of testing data. The comprehensive body of biodiesel data serves to demonstrate the significant benefits of biodiesel to the environment and to public health. This will lead to increased consumer confidence and increased use of biodiesel.