

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM-590 018



PROJECT WORK (06CH85)

“Studies on stability of Ethanol, Biodiesel & Diesel blends for the application as transportation fuel”

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I.ABSTRACT

Energy is very important for life quality and social development of people as well as economic growth. Fossil fuels have been an important conventional energy source for years. The climatic changes occurring due to increased carbon dioxide emissions and global warming, increasing air pollution and depletion of fossil fuels are the major problems in the present century. The literature survey reveals that the researches have focused on the biofuels as environmental friendly energy source to reduce dependence on fossil fuels and to reduce air pollution.

Over the past decade, there has been a tremendous increase in efforts to reduce the reliance on petroleum fuels for transportation in many parts of the world including India. Among the propose alternatives biodiesel and bioethanol have received much attention because, they are the renewable and readily produced from variety of feed stocks using proven technology. When biodiesel is burnt in diesel engines, there is a substantial reduction in unburnt hydrocarbons, carbon monoxide and particulate matter. As a substitute for petroleum fuel, biodiesel is normally blended with diesel while ethanol is mixed with gasoline. But much less attention was given for blending ethanol with diesel. Diesel and ethanol are however inherently immiscible because of their difference in chemical structures and characterstics. Therefore an effective emulsifier is needed is convert ethanol, biodiesel and diesel heterogeneous liquid phase. The emulsifier would reduce the interfacial tension force and increases the affinity between the liquid phases leading to emulsion stability. In the above context, modest efforts have been made to investigate a suitable emulsifier for ethanol, biodiesel and diesel blend to produce micro emulsion with good stability.

EBD blends were prepared with the various composition by volume. EBD blends were found to be miscible up to the composition E32B68D100. The fuel properties of blends obtained are reported.

Immiscibility of EBD blends were noticed for higher composition of ethanol for the blend E36B64D100. Different immiscible blends were prepared by increasing composition of ethanol up to E68B32D100. Different emulsifiers were tested to get micro emulsion of EBD blends. Satisfactory micro emulsions of EBD blends with good stability were obtained by using Sodium lauryl sulphonate as an emulsifier and our findings were reported.