Influence of methanol in physio chemical properties of gasoline fuel mix and impact of surfactant

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Introduction of bio fuels from renewable source is an alternate to reduce global warming, hydrocarbon emissions, minimise the use of petroleum reserve and blending of alcohol was started without modifying the vehicle design. Addition of low chain alcohol in gasoline increases the vapour pressure considerably and exhibits an azeotrope characteristics that effects severely on distillation parameter. An experiment done on blending of methanol in different volumetric proportion (5%, 10%, 15%, 20%, 25%) with hydrocracked gasoline then influence on volatility performance and distillation properties were studied. Physical characterisation of different blends were studied for vapour pressure (VP), VLI, DI and distillation. This fuel-alcohol blends exhibited rise in recovery at 700C (E70), VP, VLI and area of azeotrope with increase in % of alcohol volume in gasoline blend. An equation is established from distillation data to predict the impact of methanol % by volume on recovery in distillation. With the increase in aromatic content in gasoline fuel exhibits higher azeotrope behaviour. Addition of non-ionic surfactant in gasoline-methanol fuel blend (M15) reduces the azeotrope behaviour and flattens the distillation curve. Recovery at 700C , vapour lock index (VLI), driveability index (DI) and azeotrope area reduces uniformly with the rise in surfactant dosage (%) in M15. This provides useful information for using a suitable methanol blended gasoline in SI engine for all climatic conditions

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