

Article

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Process for producing high octane gasoline having lower benzene content and distillation end point with its environmental effect of engine exhaust emissions

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Abstract

In this research, a process is discussed for upgrading reformat and power former in Iraq's Al-Doura refinery, by reducing the amount of benzene in the gasoline product with simultaneous reduction in the gasoline's ASTM distillation end point. The process consists of fractionation of the reformat and power former to recover that fraction (90–180°C) of hydrocarbons. This was directly used as gasoline without further conversion. The heavy bottom fraction (180°C—EBP) consisting of the aromatic and non-aromatic hydrocarbons was recovered and used as antiknock additives to gasoline. The other fraction with (IBP—90°C) was used as feedstock to producing benzene by solvent extraction. The reformat and power former fractions (90–180°C) are blended with light straight run naphtha at ratio (75: 25) to producing gasoline as well as Al Doura gasoline. It was found that the amount of benzene was reduced from 1.41 wt % in the original pool to 1.37 and 1.31 in the alternative products. Engine emissions were also reduced when using the alternative products compared with original pool product.