MANNICH DETERGENTS FOR HYDROCARBON FUELS

Abstract

New, highly effective Mannich detergents for use in hydrocarbon fuels are described which reduce engine deposits in spark and compression ignition internal combustion engines. They are Mannich condensation reaction products obtained from reacting: (i) a polyamine having a sterically-hindered primary amino group, (ii) a hydrocarbyl-substituted hydroxyaromatic compound, and (iii) an aldehyde. These Mannich detergent compounds may be dispersed in a liquid carrier to provide a fuel additive concentrate for hydrocarbon engine fuels which effectively control engine deposit formation in intake valves and also other engine regions such as port fuel injectors and combustion chambers.