

TREATED PORT FUEL INJECTORS

Abstract

Treated port fuel injectors are disclosed. The treated port fuel injectors have a surface coated with a film which resists or limits deposit formation on the injector surface. The film may be formed by contacting the port fuel injector with: (i) a succinimide compound comprising the reaction product of polyisobutylene-substituted succinic anhydride and a polyamine; (ii) a Mannich base detergent; and (iii) a spark ignition fuel. The treated port fuel injectors may also include a film formed by contacting the port fuel injector with: (i) a Mannich condensation reaction product of a polyamine having a sterically-hindered primary amino group, a hydrocarbyl-substituted hydroxyaromatic compound, and an aldehyde; and (ii) a spark ignition fuel. Methods of forming films on port fuel injector surfaces are also disclosed.