

Title (en)
Fuels for homogeneous charge compression ignition combustion engine

Title (de)
Brennstoffe für homogen geladene verdichtungsgezündete Maschinen

Title (fr)
Carburants pour moteurs à allumage par compression de mélange homogène

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Application
EP 08021384 A 20081209

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Abstract (en)
The present invention provides a fuel for a homogeneous charge compression auto-ignition combustion engine which is capable of controlling the combustion reaction during homogeneous charge compression auto-ignition combustion to improve the engine thermal efficiency. The fuel satisfies all of the following characteristic requirements (1) to (6) and the following requirement (7) or (8): (1) the total content of C5 to C10 normal paraffins is 25 percent by volume or more, and 70 percent by volume or less; (2) the total content of C6 to C11 aromatic hydrocarbons is 30 percent by volume or more, and 75 percent by volume or less; (3) the content of olefinic hydrocarbons is 20 percent by volume or less; (4) the content of oxygenates is 5 percent by mass or less in terms of oxygen; (5) the research octane number is 70 or greater, and less than 92; (6) the initial boiling point and end point in distillation characteristics are 30°C or higher, and 220°C or lower, respectively; (7) the averaged maximum pressure rise rate of the fuel over continuous 400 cycles is smaller by 15 percent or more, comparing with that of a primary reference fuel (PRF) which exhibits the same indicated mean effective pressure (IMEP) and crank angle of 50% burn of high temperature heat release (HTHR CA50) as the fuel under the same engine operating conditions; and (8) the averaged IMEP of the fuel over continuous 400 cycles is increased by 20 percent or more, comparing with that of a primary reference fuel (PRF) with the same research octane number as the fuel, the IMEPs of the fuel and PRF being measured at the same maximum pressure rise rate under the same engine operating conditions.

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