

LUBRICATING OIL COMPOSITIONS WITH ENHANCED PISTON CLEANLINESS

ABSTRACT

Disclosed herein are low and medium sulfur, phosphorus, and sulfated ash (low and medium “SAPS”) lubricating oil compositions for providing enhanced piston cleanliness in an internal combustion engine. The lubricating oil compositions comprise at least one Mannich reaction product prepared by the condensation of a polyisobutyl-substituted hydroxyaromatic compound, wherein the polyisobutyl group is derived from polyisobutene containing at least 70 wt. % methylvinylidene isomer and has a number average molecular weight of from 400 to 2,500, an aldehyde, an amino acid or ester derivative thereof, and an alkali metal base.

[No Suitable Figure]