

PHOSPHORYLATED THERMAL STABILITY ADDITIVES FOR DISTILLATE FUELS

ABSTRACT

This invention is directed to the use of a reaction product of a hydrocarbyl dicarboxylic acid, or derivative thereof, a polyhydroxyl compound and a phosphorus compound. A representative additive is prepared by reacting polyisobutenyl succinic anhydride (molecular weight of about 1050 gms/mole); a polyhydroxyl compound, such as pentaerythritol; and an organic phosphorus compound, such as diethyl phosphite. The additive is used in diesel and jet fuels to reduce the formation of gums and other thermal degradation products. The additives of the present invention are economical to produce and provide effective protection to the fuels at treat rates as low as 10 mg/liter.

The invention also relates to the use of admixtures of 1) an ester formed by reacting a hydrocarbyl substituted dicarboxylic acid, or derivative thereof, with a polyhydroxyl compound; and 2) a phosphorus containing compound to stabilize distillate fuels.