

CALCIUM NEUTRAL AND OVERBASED MANNICH AND ANHYDRIDE ADDUCTS AS DETERGENTS FOR ENGINE OIL LUBRICANTS

ABSTRACT

A sulfur-free metal or ammonium salt compound, a method of making the compound, and a lubricant additive concentrate, and lubricant composition containing the compound. The compound is made by reacting a phenolic compound reacted with an aldehyde and an amine, with a compound selected from the group consisting of an acylating agent and an electrophilic compound.

[No available figure]