

SULFURIZED METAL ALKYL PHENATE COMPOSITIONS HAVING A LOW ALKYL PHENOL CONTENT

ABSTRACT OF THE DISCLOSURE

5 Provided herein are sulfurized metal alkyl phenate compositions having a low alkyl
phenol content. The sulfurized metal alkyl phenate compositions can be prepared by reacting
a phenol compound of Formula (I) disclosed herein with an aldehyde to form a phenolic resin
of Formula (II) disclosed herein and then by reacting the phenolic resin simultaneously with a
metal base and a first sulfurizing agent. The sulfurized metal alkyl phenate compositions and
10 the overbased sulfurized metal alkyl phenate compositions disclosed herein may be used as
detergents for formulating lubricating oil compositions. The lubricating oil compositions
disclosed herein have a reduced amount of the free phenol compound and a salt thereof.