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PRODUCTION OF LUBRICANTS

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4 Claims. (Cl. 252—34)

This invention relates to lubricants, and it is among the objects of the invention to provide lubricants having improved lubricating properties and durability; and to the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In accordance with the invention, a mineral oil of lubricating viscosity, as a lubricant base, is compounded by an addition of a small amount of an amine salt of an organic carboxylic acid in which the amine is a cyclohexylamine and the acid radical naphthenic acid or a fatty acid of at least six carbon atoms, plain or halogenated, these compounds being of the general formula, $R_n.NH_{4-n}.COOR'$, in which R is cyclohexyl or dicyclohexyl or tricyclohexyl, n is 1, 2 or 3, and R' is the radical of naphthenic acid or a fatty acid of more than six carbon atoms or halogenated naphthenic acid or fatty acid of more than six carbon atoms, lubricants involving these compounds being of exceptional utility over the known simpler compounds of amine base. Illustrative are such salts of cyclohexylamine and di- or tri-cyclohexylamine as the naphthenates, chloronaphthenates, stearates, palmitates, laurates, dichlorostearates, etc. The mineral oil may be of desired viscosity, as for instance 45 to 200 S. U. at 210° F. The amount of the amine salt may in general be around 0.1 per cent, and may be less, i. e. down to 0.01 per cent, or more although amounts over 2 per cent are unnecessary.

As an example: A Mid-Continent lubricating oil of viscosity of 50 S. U. at 210° F. is compounded with 0.1 per cent of cyclohexylamine naphthenate.

As another example: A similar lubricating oil is compounded with 0.1 per cent of cyclohexylamine dichlorostearate.

As another example: A similar lubricating oil is compounded with 0.1 per cent of dicyclohexylamine naphthenate.

As another example: A similar lubricating oil is compounded with 0.1 per cent of cyclohexylamine chloronaphthenate.

As another example: A similar lubricating oil is compounded with 0.1 per cent of dicyclohexylamine dichloronaphthenate.

This application is a continuation, in part and as to common subject matter of our application Serial No. 182,008, filed December 27, 1937.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

We therefore particularly point out and distinctly claim as our invention:

1. A lubricant comprising a mineral lubricating oil and a small amount of cyclohexylamine naphthenate.

2. A lubricant comprising a mineral lubricating oil and a small amount of cyclohexylamine dichlorostearate.

3. A lubricant comprising a mineral lubricating oil and a small amount of dicyclohexylamine dichlorostearate.

4. A lubricant comprising a mineral lubricating oil and a small amount of a cyclic amine salt of the general formula $R_n.NH_{4-n}.COOR'$, in which R is cyclohexyl or di- or tri-cyclohexyl, n is 1, 2 or 3, and R' is the radical of naphthenic acid or a fatty acid of more than six carbon atoms or halogenated naphthenic acid or fatty acid of more than six carbon atoms.

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