

UNITED STATES PATENT OFFICE

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LOW COLD TEST LUBRICATING OIL

No Drawing.

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In accordance with the present invention, the cold test, pour test or equivalent inspection test of viscous hydrocarbon oils, such as those used primarily for lubricating purposes is lowered by the addition to such oils of amides, and particularly amides derived from fatty acids and aromatics amines.

In practice, it is preferred to employ amides derived from derivatives of aniline having alkyl groups substituted in the ring, such as toluidine, xylidine, and their homologues, and higher fatty acids, particularly stearic acid.

Such amides may be prepared in known manner by heating the fatty acid and the amine together at about 325-350° F. It is not necessary to purify the condensation products. The amides may be prepared in any other suitable way, if desired.

The proportion of such amides supplied to the oil is controlled in proportion to the lowering of cold or pour test desired. Ordinarily, the amount is less than about 10 to 20 grams per liter of oil. Larger or smaller quantities may be employed, if desired, for example valuable results are obtainable with between 1 and 5 grams of such amides per liter of oil.

For example, with a viscous hydrocarbon lubricant oil of 180 sec. Saybolt (at 100° F.) viscosity having a pour test of about 30° F., the addition of 1¼ grams of 1, 3-dimethyl 4-phenyl stearamide per liter of oil reduces the pour test to about 16° F. An addition of 2.5 grams of xylyl stearamide produced from commercial xylidine, per liter of oil, reduces the pour test to about 12° F.

With more viscous oils, for example a heavy automotive engine lubricant of about 400 to 450 sec. Saybolt viscosity at 100° F. and a pour test of about 30° F., the addition of about 5 grams of o-tolyl stearamide per liter reduces the pour test to about 6° F. The addition of 2.5 grams of 1, 3-dimethyl 4-phenyl stearamide per liter reduces the pour test to about 4° F., while a similar addition of xylyl stearamide produced from commercial xylidine reduces the pour test of the oil to about 3° F.

We claim:

1. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein a small proportion of an amide derived from fatty acids and derivatives of aniline having alkyl groups substituted in the ring.

2. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein a small proportion of an amide derived from higher fatty acid and aromatic amines containing not more than two methyl groups in the ring.

3. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein an amide derived from a derivative of aniline having alkyl groups substituted in the ring and stearic acid.

4. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein xylyl stearamide.

5. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying up to 20 grams of xylyl stearamide per liter of oil.

6. A lubricant oil comprising a viscous hydrocarbon oil and a small quantity of an amide derived from fatty acids and derivatives of aniline having alkyl groups substituted in the ring, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

7. A lubricant oil comprising a viscous hydrocarbon oil and a small quantity of an amide derived from higher fatty acids and aromatic amines containing not more than two methyl groups in the ring, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

8. A lubricant oil comprising a viscous hydrocarbon oil and an amide derived from a derivative of aniline having alkyl groups substituted in the ring and stearic acid.

9. A lubricant oil comprising a viscous hydrocarbon oil and xylyl stearamide.

10. A lubricant oil comprising a viscous hydrocarbon oil and up to 20 grams of xylyl stearamide.

11. The method of lowering the pour test of a viscous hydrocarbon oil which comprises

supplying therein not more than 20 grams per liter of oil of an amide derived from fatty acids and aromatic amines.

12. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein not more than 20 grams per liter of oil of an amide derived from fatty acids and derivatives of aniline having alkyl groups substituted in the ring.

13. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein not more than 20 grams per liter of oil of an amide derived from higher fatty acids and aromatic amines containing not more than two methyl groups in the ring.

14. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein not more than 20 grams per liter of oil of an amide derived from an aromatic amine and stearic acid.

15. A lubricant oil comprising a viscous hydrocarbon oil and not more than 20 grams per liter of oil of an amide derived from fatty acids and aromatic amines, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

16. A lubricant oil comprising a viscous hydrocarbon oil and not more than 20 grams per liter of oil of an amide derived from fatty acids and derivatives of aniline having alkyl groups substituted in the ring, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

17. A lubricant oil comprising a viscous hydrocarbon oil and not more than 20 grams per liter of oil of an amide derived from higher fatty acids and aromatic amines containing not more than two methyl groups in the ring, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

18. A lubricant oil comprising a viscous hydrocarbon oil and not more than 20 grams per liter of oil of an amide derived from an aromatic amine and stearic acid, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

19. The method of lowering the pour test of a viscous hydrocarbon oil which comprises supplying therein not more than 20 grams per liter of oil of an amide.

20. A lubricant oil comprising a viscous hydrocarbon oil and not more than 20 grams per liter of oil of an amide, the oil having a pour test lower than that of the viscous hydrocarbon oil alone.

In witness whereof, we have hereunto set our hands.

Whiting, Lake County, Indiana, this 10th day of December, 1928.

FREDERICK W. SULLIVAN, JR.

Woodriver, Madison County, Illinois, this 18th day of December, 1928.

WILLIAM J. MCGILL.