

1

2,884,329

POLISH FORMULATION

James L. Jezl, Swarthmore, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Application February 27, 1957
Serial No. 642,681

8 Claims. (Cl. 106—10)

This invention relates to an improved petroleum wax polish formulation.

The improved polish formulation of this invention comprises a mixture of petroleum wax and a volatile hydrocarbon solvent having incorporated therein an oxygen-containing polar organic liquid which is higher boiling than the hydrocarbon solvent, and in which petroleum wax is substantially insoluble. The oxygen-containing polar organic liquid is incorporated in the polish formulation in a minor amount sufficient to substantially improve the ease with which the wax is polished to a high gloss and luster.

This polish is applied to wood, metal or other surfaces in a conventional manner. Upon application, the volatile hydrocarbon solvent rapidly evaporates leaving a wax coating having a film of oxygen-containing polar organic liquid on the surface thereof. This liquid film serves to lubricate the wax coating during subsequent polishing prior to the evaporation of the film. According to the invention, the wax is more readily polished to a high gloss and luster by virtue of the effect of this liquid film on the surface of the wax coating.

The petroleum wax used in this invention can be petroleum paraffin or microcrystalline wax. Blends of the two may be used if desired. In general, where more durable wax coatings are desired, greater amounts of the harder, higher melting microcrystalline wax are used in the polish formulation. In certain instances it may be desirable to blend minor amounts of other constituents with the formulations of the present invention to obtain desirable properties. For example, a minor amount of a vegetable wax such as carnauba wax may be blended with the petroleum wax to improve the hardness thereof.

The volatile hydrocarbon solvent which forms part of the polish formulation of this invention can be a pure hydrocarbon compound or a mixture of hydrocarbons. The hydrocarbon solvent should be sufficiently volatile to evaporate soon after application of the polish; however, the hydrocarbon solvent should also be sufficiently high boiling so that it does not prematurely evaporate and dry out the polish prior to effective application. In addition to the above requirements, petroleum wax must be substantially soluble in the hydrocarbon solvent within the range of proportions used in the practice of this invention. In general, paraffinic, naphthenic or aromatic hydrocarbons or mixtures thereof boiling in the range of about 200° F. to 500° F. are most suitable for use as the volatile hydrocarbon solvent according to this invention. Specific examples of suitable solvents are aromatics such as toluene and xylene, distillate petroleum fractions such as petroleum spirits, petroleum light naphtha, petroleum heavy naphtha and kerosene, paraffin hydrocarbons such as heptane, octane, nonane, and the like.

In general, normally liquid, oxygen-containing polar organic compounds can be used in the polish formulations of the present invention, but liquid glycols and glycol ethers are preferred compounds. The oxygen-containing

2

polar organic liquid employed must, however, meet the following requirements: it must not dissolve appreciable quantities of petroleum wax at ambient temperatures, i.e., at 20° C. less than about 0.5 gram of petroleum wax is soluble in 100 cc. of the oxygen-containing polar organic liquid; it must be substantially soluble in the above described hydrocarbon solvent; and it must be volatile although less volatile than the said hydrocarbon solvent, so that the film of the polar liquid remaining on the wax surface after evaporation of the solvent will readily evaporate therefrom upon polishing the wax, or shortly thereafter.

In general, it is preferred that the oxygen-containing polar organic compound boil about 50° F. to 200° F. above the end boiling point of the hydrocarbon solvent. The use of compounds having this relative boiling range insures that sufficient of the compound will remain on the surface of the wax coating after evaporation of the hydrocarbon solvent to successfully improve the ease of polishing the wax, and that the polar organic compound will evaporate without unduly great delay after initial evaporation of the hydrocarbon solvent. On occasion, however, compounds boiling outside of the above cited range may be used. A preferred boiling range for the oxygen-containing polar organic liquid used in this invention is 250° F. to 550° F.

Examples of glycols and glycol ethers, illustrative of the preferred oxygen-containing polar organic liquids which can be used, are ethylene glycol, propylene glycol, trimethylene glycol, 1,3-butanediol, 2,3-butanediol, 2,4-pentanediol, 1,5-pentanediol, 1,6-hexanediol, 2,5-hexanediol, 2-methyl-1,3-pentanediol, 2-methyl-2,4-pentanediol, 2,4-heptanediol, diethylene glycol, diethylene glycol monomethyl ether, diethylene glycol mono-methyl ether, diethylene glycol, monobutyl ether, methoxytriglycol and ethoxytriglycol. Other oxygen-containing polar organic liquids are suitable, for example, alcohols such as cyclohexanol, and esters such as phenyl acetate, ethyl oxylate, and the like. Mixtures of the above can be used. In general, it is preferred to use less expensive, more readily available compounds such as ethylene glycol, propylene glycol, diethylene glycol, dipropylene glycol, and ethoxytriglycol.

The relative proportions of the petroleum wax, volatile hydrocarbon solvent and oxygen-containing polar organic liquid can vary. It is within the scope of this invention to prepare both liquid and paste polish formulations. In liquid formulations, suitable compositions by weight generally comprise 5 to 15% petroleum wax, 78 to 94% volatile hydrocarbon solvent and 1 to 7% oxygen-containing polar organic liquid. This amount of said polar organic liquid is generally sufficient in liquid polish formulations to substantially improve the ease with which the wax is polished to a high gloss and luster. In paste polish formulations, suitable compositions generally comprise by weight 25 to 35% petroleum wax, 58 to 74% volatile hydrocarbon solvent, and 1 to 7% oxygen-containing polar organic liquid. This amount of said polar liquid is sufficient to substantially improve the ease of polishing such paste polish formulations. The above range of proportions is not, however, critical, and on occasion proportions outside of the above cited ranges can successfully be used. However, it is not advantageous, according to the invention to use more than about 10% of the oxygen-containing polar organic liquid.

In order to illustrate a specific embodiment of the present invention, a petroleum wax liquid polish formulation was prepared employing diethylene glycol as illustrative of the oxygen-containing polar organic liquids which can be used. The polish formulation was prepared by dissolving petroleum microcrystalline wax in petroleum spirits and adding thereto diethylene glycol. The final polish

formulation contained 6% by weight petroleum microcrystalline wax, 88% by weight petroleum spirits and 6% by weight diethylene glycol. The above described polish formulation was applied to a linoleum surface and polished. A high gloss, luster finish was obtained. In comparison, another petroleum wax polish formulation, containing 6% by weight petroleum microcrystalline wax and 94% by weight petroleum spirits, but without the oxygen-containing polar organic additive of the present invention, was applied to a linoleum surface and polished to a similar extent. The latter polish formulation gave a relatively low gloss, dull finish. It can thus be seen that unobvious benefits are obtained with the polish formulations of the present invention as compared to polish formulations heretofore described.

This application is a continuation-in-part of application Serial No. 472,782, filed December 2, 1954, and which has become abandoned.

The invention claimed is:

1. A polish composition consisting essentially of a minor proportion of a wax derived from petroleum, said wax being selected from the group consisting of paraffin wax, petroleum microcrystalline wax, and mixtures thereof; a major proportion of a volatile hydrocarbon solvent in which said wax is substantially soluble; and from 1% to 10% by weight of a volatile, normally-liquid, oxygen-containing, polar organic compound, boiling above the end boiling point of said hydrocarbon solvent, substantially soluble in said hydrocarbon solvent, and in which said wax is substantially insoluble at ambient temperature, said polar organic compound being selected from the group consisting of glycols and glycol ethers.

2. Composition according to claim 1 wherein the said polar organic compound is ethylene glycol.

3. Composition according to claim 1 wherein the said polar organic compound is propylene glycol.

4. Composition according to claim 1 wherein the said polar organic compound is diethylene glycol.

5. Composition according to claim 1 wherein the said polar organic compound is dipropylene glycol.

6. Composition according to claim 1 wherein the said polar organic compound is ethoxytriglycol.

7. A liquid polish formulation consisting essentially of from 5 to 15% by weight of a petroleum wax selected from the group consisting of paraffin wax, petroleum microcrystalline wax and mixtures thereof; from 78 to 94% by weight of a volatile hydrocarbon solvent in which said wax is substantially soluble; and from 1 to 7% by weight of a volatile, normally-liquid, oxygen-containing, polar organic compound, boiling above the end boiling point of said hydrocarbon solvent, substantially soluble in said hydrocarbon solvent, and in which said wax is substantially insoluble at ambient temperature, said polar organic compound being selected from the group consisting of glycols and glycol ethers.

8. A paste polish formulation consisting essentially of from 25 to 35% by weight of a petroleum wax selected from the group consisting of paraffin wax, petroleum microcrystalline wax and mixtures thereof; from 58 to 74% by weight of a volatile hydrocarbon solvent in which said wax is substantially soluble; and from 1 to 7% by weight of a volatile, normally-liquid, oxygen-containing, polar organic compound, boiling above the end boiling point of said hydrocarbon solvent, substantially soluble in said hydrocarbon solvent, and in which said wax is substantially insoluble at ambient temperature, said polar organic compound being selected from the group consisting of glycols and glycol ethers.

References Cited in the file of this patent

UNITED STATES PATENTS

2,244,685	Fritz	June 10, 1941
2,350,350	Gresham	June 6, 1944
2,598,666	Sesso et al.	June 3, 1952
2,728,679	Wright	Dec. 27, 1955