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SPINNING OIL COMPOSITION

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1 Claim. (Cl. 252—8.7)

This invention relates to new and useful compositions comprising surface active agents.

It is an object of the present invention to provide new and useful compositions comprising anionic surface active agents. It is a further object to provide new spinning oils. It is a still further object to provide single phase spinning oils comprising water and mineral oils. Other objects will appear hereinafter.

According to the present invention new and useful compositions, suitable for use as spinning oils, are provided comprising a metal alkyl sulphate obtained by the sulphation of a hydrocarbon material comprising an olefin having a boiling point of at least 200° C., together with water, a high molecular weight fatty acid, for example oleic acid, a mineral oil and a diethylene glycol alkyl ether.

The preferred diethylene glycol alkyl ether is diethylene glycol butyl ether for example, the material known as "Butyl-Cellosolve."

According to a modification of the invention, the composition contains normal butyl alcohol in place of the diethylene glycol alkyl ether.

Preferably metal alkyl sulphates are employed which have been obtained by sulphation of a shale oil distillation fraction having an initial boiling point not lower than 200° C. and a final boiling point not higher than 350° C.

Preferably the distillation fraction boils over the entire range 200–350° C. It has been found that the use of metal alkyl sulphates derived from a shale oil distillation fraction of this boiling range enables the production of spinning oils of good quality while using low proportions of oleic acid and of the ether or alcohol hereinbefore described.

The preferred metal alkyl sulphates are alkali metal alkyl sulphates and usually sodium alkyl sulphates are employed. Preferably the alkali metal alkyl sulphate is a sulphate obtained by reacting with sulphuric acid a distillation fraction of shale oil, said fraction boiling over the entire range 200 to 350° C., and thereafter neutralising the alkyl hydrogen sulphate so obtained by means of an alkali metal base, with or without simultaneous hydrolysis of dialkyl sulphates. As pointed out in my copending application Serial No. 371,169, filed concurrently with the instant application on July 29, 1953, the sulphuric acid used in the sulphurization of shale oil is preferably of 90–98% strength, and the necessary quantity of acid is run into the oil over a period of 1–2 hours, with stirring, so as to prevent the temperature rising above 20° C.

The nature of the mineral oil constituent of the composition may be varied according to the specific purpose for which the composition is intended, but in general petroleum fractions are preferred. A suitable material is spindle oil, preferably derived from Venezuelan crude oil.

Preferably the high molecular weight fatty acid contains at least 12 carbon atoms/molecule. A preferred acid

is oleic acid. Conveniently the oleic acid is a commercial grade olein and preferably is an olein of 70% saponifiable matter.

It is a feature of the present invention that, by the use of the diethylene glycol alkyl ethers, and/or normal butyl alcohol, compositions may be obtained containing the metal alkyl sulphate, water, a high molecular weight fatty acid and mineral oil, in a single liquid phase, under wider ranges of relative proportions than would otherwise be the case. It has also been found that by the use, as a further constituent of the compositions, of an alkali metal salt, for example, a carbonate or sulphate, the quantity of said ether or alcohol required to form a single liquid phase product, is materially reduced though the necessary solubilising power is retained.

Thus according to a further aspect of the present invention, compositions are provided comprising said metal alkyl sulphates, water, a fatty acid, a mineral oil, an alkali metal salt together with a diethylene glycol alkyl ether and/or normal butyl alcohol.

Preferably the constituents of the preferred compositions of the invention are employed within the following ranges, expressed as percentages of the weight of the compositions:

	Percent weight
Sodium alkyl sulphate (20% aqueous solution containing up to 5% sodium sulphate)	20–40
Spindle oil derived from Venezuelan crude oil	30–70
Olein (70–90% saponifiable)	5–50
Di-ethylene Glycol alkyl ether and/or normal butyl alcohol (total)	1–10

The invention is illustrated but in no way limited by the following examples, percentages being by weight.

As the sodium alkyl sulphate solution, there is employed a material made by sulphation of a shale oil having the boiling range 200–350° C.

Example 1

	Percent
Sodium alkyl sulphate (20% aqueous solution containing up to 5% sodium sulphate)	28.1
Spindle oil derived from Venezuelan crude oil	55.0
Olein	13.9
Diethylene glycol butyl ether	3.0

Example 2

Sodium alkyl sulphate (aqueous solution-20% active agent content)	29.0
Spindle oil derived from Venezuelan crude oil	48.0
Olein (70% saponifiable)	21.0
Di-ethylene glycol mono butyl ether	2.0

Example 3

Sodium alkyl sulphate (aqueous solution-20% active agent content)	29.5
Spindle oil derived from Venezuelan crude oil	59.0
Olein (70% saponifiable)	9.5
Normal butyl alcohol	2.0

In the composition of Example 1, the alkali metal salt, sodium sulphate, employed in conjunction with the diethylene glycol butyl ether as a material solubilising agent, may, if desired, be replaced with an alkali metal carbonate, it being understood that the compositions of Examples 2 and 3 may also include a proportion of alkali metal salt in the content of active agent.

I claim:

A composition suitable for use as a spinning oil con-

sisting essentially of in combination the following ingredients by percent weight:

	Percent by weight
A sodium alkyl sulphate in the form of an aqueous solution and having a concentration equivalent to a 20% solution, said sulphate obtained by reacting a shale oil fraction having a boiling point within the range of 200–350° C. with sulphuric acid of 90–98% strength at a temperature under 20° C. followed by a neutralization of resulting alkyl hydrogen sulphide by treatment with a sodium base	20–40
Petroleum spindle oil fraction	30–70
Olein	5–50

A material solubilizing agent therefor being sodium sulphate	up to about 5
Together with an oxygen-containing organic solvent selected from the group consisting of diethylene glycol butyl ether, normal butyl alcohol, and mixtures thereof	1–10

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