

UNITED STATES PATENT OFFICE

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GREASE INSOLUBLE IN GASOLINE

No Drawing.

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This invention relates to a lubricant which is insoluble in gasoline, petroleum solvents, and the like.

In gasoline refining systems, moving parts of valves, pumps, etc. must be lubricated by a composition which will not be deleteriously affected by gasoline or other petroleum products. Mixtures of soap and glycerine, which have been used for this purpose, are not satisfactory because of the abrupt change in consistency which accompanies changes in temperature. An object of my invention is to provide a lubricant in which the consistency will be more uniform. A further object is to provide a more effective and a more satisfactory lubricant of the type.

My invention contemplates the use of oil in a gasoline insoluble composition. Oil cannot be used to lubricate these parts directly because it is soluble in gasoline. I have discovered that by emulsifying oil with soap in a polyhydric alcohol, such as glycerine or glycol, a composition results which is an excellent lubricant, which is unaffected by gasoline, and which is characterized by a substantially uniform consistency that changes gradually with changes in temperature. This composition is an excellent suspension medium for a solid lubricant, such as graphite.

As a preferred embodiment of my invention I may employ the following formula:

	Parts by weight
Normal fatty acid.....	17
Glycerine.....	37
Lubricating oil.....	35
Flaked graphite.....	5
Potassium hydroxide.....	3
Water.....	3

The fatty acid, glycerine and oil may be mixed in a suitable grease mixer and the potassium hydroxide dissolved in the water and added to these ingredients with sufficient agitation to obtain a more uniform mixture.

The graphite may be added before or after the potassium hydroxide. The reaction begins at room temperature and is exothermic; the mixture is stirred until the saponification is substantially complete. The finished product may be handled like ordinary grease.

The above formula is quite flexible in that the specific ingredients and quantities thereof may be varied without impairing the beneficial properties of the grease. Glycol or other polyhydric alcohols may be used in place of glycerine. Instead of animal fatty acid, any fatty acid may be used, the percentage of free fatty acid determining, in part, the consistency of the grease. The viscosity and other physical properties of the oil may be varied, depending upon the consistency of the grease desired. Sodium hydroxide may be substituted for potassium hydroxide. Any suitable solid lubricant may be incorporated to take the place of graphite or, if desired, it may be entirely left out of the mixture.

Apparently, the formation of soap brings about an emulsification of the oil in the glycerine, and the emulsion has gasoline resistant properties. At the same time, a grease is obtained which has a highly desirable consistency and lubricating value. The resulting product is especially useful for service in centrifugal pump packing glands, plug valves in gasoline lines, etc.

While I have described my invention in detail, it is understood that I am not limited to the particular substances or properties recited except as defined by the following claims:

I claim:

1. A gasoline insoluble composition of matter comprising about:

	Parts
Free fatty acid.....	2.5
Fatty acid soap.....	17.5
Glycerine.....	37
Oil.....	35

2. A gasoline insoluble composition of matter consisting of about

	Parts by weight
Normal fatty acid.....	17
Glycerine.....	37
Lubricating oil.....	35
Flaked graphite.....	5
Potassium hydroxide.....	3
Water.....	3

3. A gasoline insoluble lubricant of the class described, comprising a mineral oil emulsified in a mixture of about 10 parts glycerine and one part water by means of a fatty acid soap and free fatty acid.

4. A gasoline insoluble lubricant of the class described, comprising a mineral oil emulsified in a mixture of about 10 parts glycerine and one part water by means of a fatty acid soap and free fatty acid.

Signed this 14th day of April, 1930, at Whiting in the county of Lake, State of Indiana.

MAURICE H. ARVESON.

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