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LUBRICANT.

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This invention relates to a composition of matter particularly adapted for use as a lubricant of the kind commonly known as hard oil or packing grease.

An object of the invention is to provide a lubricant which is of simple composition and which by reason of the cheapness and abundance of its principal ingredient can be produced at very low cost.

Another object is to provide a lubricant having high stability, both physical and chemical, and a further object is to provide a hard oil or packing grease having high lubricant power and capable of forming a film of great compressive strength.

With the above and other objects in view, the composition has as its principal ingredient, a colloidal or jelly-forming clay such as bentonite ($Al_2O_3.6SiO_2.5H_2O$) or other hydrated silicate of aluminum.

The composition involves the use of a plastic mineral substance having as components, a gelatinous colloid, a mineral salt and a water insoluble clay in a state of fine subdivision. Bentonite or other clay of similar nature lends itself particularly to the production of the desired substance. To still better adapt the colloidal clay for use in preparing a composition of the above-stated character it is subjected to an acid treatment for the production of ortho-silicic acid.

The natural clays contain a considerable amount of combined silicic acid and by treating the material with a comparatively stronger acid, part or all of the silicic acid may be displaced and precipitated, in acidic environment, as gelatinous ortho-silicic acid ($Si(OH)_4$).

Sulfuric acid is well adapted for the acid treatment of the clays although other acids, particularly those which form a water soluble salt of aluminum, such as hydrochloric or glacial acetic may be used in variant proportions with satisfactory results.

The clays after the acid treatment yield a compound of colloidal clay, aluminum sulfate, ortho-silicic acid and water that meets all the requirements for the production of a lubricant of the hereinbefore described properties.

The lubricant has for its other ingredients water and lubricating oil and its components in a desirable form are mixed in the following proportions: Bentonite 7 parts, water 7 parts, and lubricating oil 12 parts.

If the colloidal clay is subjected to an acid treatment the proportions may be as follows:

	Parts
Bentonite	7
Sulfuric acid (concentrated C. P.)	1
Water	5
Lubricating oil	12

The first three ingredients are mixed thoroughly to form a homogeneous pulp after which the engine oil is added.

Every effort must be made to attain a very fine state of subdivision of solids, which may be accomplished by grinding the pulp in a pebble mill in more than enough oil to saturate the clay. The oil in excess of the amount that can be held by the clay used then may be removed in a filter press.

It is possible to use for the oil ingredient of the composition, low grade lubricating oils and crank case drainings and as a general rule, mineral oils are better adapted for the purpose than animal or vegetable oils.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A lubricant comprising bentonite, treated with an acid stronger than silicic acid, water and lubricating oil.

2. A lubricant comprising bentonite treated with sulfuric acid, water and lubricating oil.

3. A lubricant comprising bentonite, 7 parts, treated with sulfuric acid, 1 part, water, 5 parts, and lubricating oil.

4. A lubricant comprising bentonite, 7 parts, treated with sulfuric acid, 1 part, water, 5 parts, and lubricating oil, 12 parts.

5. The method of producing a lubricant composition consisting in grinding a pulpous mixture of colloidal clay, an acid stronger than silicic acid thereby producing ortho-silicic acid and water to a fine state of subdivision of solids, in the presence of lubricating oil, and removing the excess oil by filtration.

6. A lubricant containing colloidal clay, water, ortho-silicic acid, aluminum sulfate and lubricating oil.

7. A lubricant composition comprising a gelatinous colloidal clay treated with an acid stronger than silicic acid whereby the latter is displaced as ortho-silicic acid, water and lubricating oil.

8. A lubricant comprising a gelatinous colloidal clay treated with sulfuric acid, water and lubricating oil.

9. A lubricant composition comprising bentonite treated with an acid stronger than silicic acid whereby the latter is displaced as ortho-silicic acid, water and lubricating oil.

10. The herein described process comprising the treating of aluminum silicate with an acid stronger than silicic acid, thereby producing ortho-silicic acid, and mixing it with water and lubricating oil.

11. A lubricant composition comprising a colloidal clay containing displaced ortho-silicic acid, water and lubricating oil.

In testimony whereof I have affixed my signature.

SAMUEL T. SHERRICK.