

UNITED STATES PATENT OFFICE

1,963,489

STABILIZED PETROLEUM WAX

Everett W. Fuller and Bertrand W. Story, Woodbury, N. J., assignors to Vacuum Oil Company, Inc., New York, N. Y., a corporation of New York

No Drawing. Application February 25, 1932,
Serial No. 595,226

3 Claims. (Cl. 87-19)

This invention relates to the production of petroleum waxes, such as refined paraffin wax, which are relatively resistant to oxidation by the atmosphere when maintained at temperatures above the melting point.

In the use of paraffin wax for the purpose of impregnating paper and other materials, it is customary to keep the wax at a temperature substantially above its melting point, and in contact with the atmosphere. It has been found that ordinary wax, particularly when highly refined, deteriorates rapidly under these conditions, owing to oxidation and the formation of acidic bodies. We have found, however, that such oxidation may be so far prevented or retarded, by the addition to the wax of a small quantity of certain organic disulphides, as to prevent substantial deterioration under ordinary conditions of use.

In our application for Letters Patent of the United States filed June 10, 1931, Serial No. 543,396, we have disclosed the fact that organic disulphides in general have an oxidation inhibiting effect on highly refined petroleum oils, such as transformer oil and lubricating oil. In the case of the petroleum waxes, however, we have found that a similar effect is not produced, to a practically useful degree, by all of the organic disulphides, but that it is a useful characteristic of the dialkyl disulphides. The present invention accordingly resides in the addition, to a petroleum wax, of a relatively small amount, in the order of .01% to .20% of the weight of the wax, of a dialkyl disulphide, for the purpose and with the result of stabilizing the wax against oxidation.

The effect of the addition is shown by an accelerated test performed upon a refined petroleum wax melting at approximately 50° C. In this test each sample was maintained at a temperature of 120° C. for ninety-six hours, while oxygen gas

was bubbled slowly through the melted wax. The acid content was then determined in terms of milligrams of potassium hydroxide required to neutralize one gram of the wax. In the case of the wax alone, the measure of acidity was 37.2 milligrams. The effects of the addition of various disulphides is shown in the following table, showing, in each case, the name and the amount of the disulphide and the corresponding acidity:

	mg.
.05% di-iso-amyl disulphide.....	.05
.05% di-n-butyl disulphide.....	.07
.05% di-n-propyl disulphide.....	.07
.05% dibenzyl disulphide.....	.03
.01% dibenzyl disulphide.....	.09

Larger amounts of the disulphides may be used with somewhat increased effectiveness, but they are unnecessary for most purposes, since the amounts stated reduce the acid formation to a practically negligible quantity.

Where a high temperature is to be used the less volatile disulphides, such as dibenzyl disulphide, are preferable, and dibenzyl disulphide has the further advantage of being particularly effective in inhibiting oxidation.

The invention claimed is:

1. The combination, with a petroleum wax, of a relatively small amount of dibenzyl disulphide, as an inhibitor of oxidation.
2. The combination, with a petroleum wax, of a relatively small amount of an oxidation inhibitor comprising a dialkyl disulphide.
3. The combination, with a petroleum wax, of a relatively small amount of an oxidation inhibitor comprising one or more of the dialkyl disulphides: di-iso-amyl disulphide, di-n-butyl disulphide, di-n-propyl disulphide and dibenzyl disulphide.

EVERETT W. FULLER.
BERTRAND W. STORY.