

UNITED STATES PATENT OFFICE

2,371,289

MINERAL WAX COMPOSITION

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5 Claims. (Cl. 252—51)

This invention is directed to color stabilization of paraffin waxes and is a division of our prior filed application Serial No. 323,123, filed March 9, 1940, now Patent No. 2,331,469, granted October 12, 1943.

Refined paraffin waxes in general require quite meticulous refining treatment to produce a wax which is stable against the formation of color bodies resulting in a yellowing of the wax over long periods of exposure of the wax to normal atmospheric and light conditions. This becomes particularly acute and is a controlling factor in the salability of the wax when the wax is utilized as a covering for, as a coating for, or otherwise in connection with food products. Since the formation of adverse color in the wax detracts materially from the appearance of the product with which it is associated, the color stability of the wax becomes a matter of very considerable importance over and beyond the value of the wax itself.

Numerous attempts have been made to increase the color stability of waxes by highly rigorous methods of refining, as, for example, treatment with sulfuric acids under extreme conditions.

This invention is directed to the stabilization of wax against the formation of deleterious color after long exposure to normal atmospheric and light conditions under prolonged periods of time and has for its object the provision of a wax so stabilized by the addition thereto of certain ingredients not heretofore used for such purposes.

This invention is based upon the discovery that refined paraffin wax may be stabilized against the formation of deleterious color under the conditions indicated by the addition thereto of small amounts of compounds of alkyl amines and oxygen containing acids such as fatty acids and the oxy acids of phosphorus.

There may be used, for example, such compounds of amines and fatty acids as triamylamine stearate, tributylamine stearate, dimethyl cetylamine stearate, diamylamine stearate, dibutylamine stearate, monobutylamine stearate and other members.

There may also be used amides of the oxygen acid of phosphorus such as for example, phosphorus tris dibutylamide.

To exemplify the color stabilizing effect of these various compositions, there are cited below results obtained in two tests. In each of these tests blocks of 126° F. A. S. T. M. melting point scale wax having the dimensions 6 in. x 1½ in. x ½ in., with and without added inhibitors were exposed upon the roof of a building where they were

called upon to withstand full sunlight exposure. In the first series of tests set forth in Table I, the duration of the exposure was 28 days. In the second series of tests, set forth in Table II, the duration of the exposure was 53 days.

TABLE I

6" x 1½" x ½" blocks of 126° F. A. S. T. M. melting point scale wax, with and without added inhibitors—exposed on roof for 28 days

Samples	Material added	Conc., per cent	Color after test
Blank.	None.	1.0	Light yellow.
Samples lighter in color than blank after 28 days exposure on roof.	Triamylamine stearate.		No change.

TABLE II

6" x 1½" x ½" blocks of 126° F. A. S. T. M. melting point scale wax, with and without added inhibitors—Exposed on roof for 53 days

Samples	Material added	Conc., per cent	Color after test
Blank.	None.	1.0	Yellow.
	Triamylamine stearate.	0.25	
	do.	1.0	
	Tributylamine stearate.	1.0	
	Dimethyl cetylamine stearate.	1.0	
	Diamylamine stearate.	1.0	No change.
	Dibutylamine stearate.	1.0	
	Monobutylamine stearate.	1.0	
	Phosphorous tris dibutyl amide.	1.0	

On all of the above tests the samples after exposure were compared with the blank and with similar blanks which had been protected from color deterioration. In all cases the color of the exposed sample was commercially improved over that of the uninhibited blank. In those tests wherein the color after test is noted "No change," this means that the color of the inhibited test block after the indicated exposure was exactly the same as the color of a fresh and unexposed block. Since no quantitative standards are in common use for expressing the color of wax, the data must necessarily be presented in the above form.

It is evident from the above tests that the inhibitors with which this invention is concerned are capable of effecting important changes in the liability of a commercial paraffin wax to the formation of deleterious color.

The amounts in which these various inhibitive agents may be used will vary principally with the capability of the inhibitive agent and with the type of exposure to which it is believed the product may be subjected, in general, however, the range of concentrations to be used will be from 0.01 to 5.0 weight percent with the preferred concentration being at about 1% by weight of the additive agent.

We claim:

1. A white refined paraffin wax product inhibited against the formation therein of deleterious color upon prolonged exposure to light by the addition thereto of a small amount, sufficient to so inhibit said wax, of a salt of a fatty acid and an alkyl amine.

2. A white refined paraffin wax product inhibited against the formation therein of deleterious color upon prolonged exposure to light by the addition thereto of a small amount, sufficient to so inhibit said wax, of a salt of a stearic acid and an alkyl amine, said amine containing only the elements carbon, hydrogen and nitrogen.

3. A white refined paraffin wax product inhibited against the formation therein of deleteri-

ous color upon prolonged exposure to light by the addition thereto of a small amount, sufficient to so inhibit said wax, of an alkyl amide of an oxygen acid of phosphorus, said amine containing only the elements carbon, hydrogen and nitrogen.

4. A white refined paraffin wax product inhibited against the formation therein of deleterious color upon prolonged exposure to light by the addition thereto of a small amount, sufficient to so inhibit said wax, of a material selected from the group consisting of triamylamine stearate, tributylamine stearate, dimethyl cetylamine stearate, diamylamine stearate, dibutylamine stearate, monobutylamine stearate.

5. A white refined paraffin wax product inhibited against the formation therein of deleterious color upon prolonged exposure to light by the addition thereto of a small amount, sufficient to so inhibit said wax, of phosphorus tris dibutylamide.

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Certificate of Correction

Patent No. 2,371,289.

March 13, 1945.

LYLE A. HAMILTON ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, lines 27 to 35 inclusive, for that portion of Table II reading

1.0	No change.	read	1.0	No change.
0.25			0.25	
1.0			1.0	
1.0			1.0	
1.0	No change.	read	1.0	No change.
1.0			1.0	
1.0			1.0	
1.0			1.0	

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3rd day of July, A. D. 1945.

[SEAL]

LESLIE FRAZER,
Acting Commissioner of Patents.