Patented July 27, 1943

2,325,085

UNITED STATES PATENT OFFICE

2,325,085

ANTIOXIDIZING PARAFFIN COMPOSITION

Herbert G. Vore, Jackson Heights, N. Y., assignor to American Seal-Kap Corporation of Delaware, Wilmington, Del., a corporation of Delaware

No Drawing. Application February 14, 1941, Serial No. 378,973

9 Claims. (Cl. 106—270)

This invention relates to anti-oxidants for paraffin waxes and oils and has for an object to prevent paraffin compositions from oxidizing, discoloring or developing an objectionable odor.

Another object is to provide an anti-oxidant of the above type having novel and improved characteristics.

Another object is to provide an anti-oxidant of the type above indicated which is effective in extremely small percentages.

Another object is to provide an anti-oxidant which is suited to commercial use in connection with wax baths used, for example, for paper treatment or the like.

Various other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

This application is a continuation in part of my copending application 326,622, filed March 29, 1940, for Anti-oxidizing paraffin composition.

Although the novel features which are believed to be characteristic of this invention are pointed out more particularly in the claims appended hereto, the nature of the invention will be better understood by referring to the following description in which certain specific embodiments thereof have been set forth for purposes of illustration.

In the following description and in the claims certain specific terms have been used for convenience in referring to various details of the invention. These terms, however, are to be given as broad an interpretation as the state of the art will permit.

It has been found that baths of paraffin wax such, for example, as those used commercially for water-proofing, sizing or impregnating paper, tend to foul and to cause discoloration or undesirable odors due to oxidation of the paraffin, particularly after long continued use at elevated temperatures. I have discovered that certain other substances, even when present in minute quantities in a bath of paraffin waxes or paraffin oils, have the property of preventing such oxidation and permit the bath to be used commercially for long periods of time without fouling.

The invention is particularly applicable to paraffin wax baths to be used for impregnating or treating paper for the formation of bottle caps in accordance with the process set forth in the Baum Patent 1,668,349. In that process it is necessary to maintain a bath of wax at a temperature of, for example, 235° F. to 240° F. for indefinite periods of time. As operated commercially, the bath is maintained continuously at this temperature, new wax being added to replace wax which is used up in the process.

In accordance with the present invention, I have found that natural and artificial asphalts and pitches, and their derivatives and asphalt-like substances, such as gilsonite, manjak and other asphaltites and petroleum residue asphalts, in extremely small percentages are suited to prevent oxidation of a paraffin wax bath when the bath is operated at the above temperature. It is to be understood that the percentage of anti-oxidant required increases in accordance with the temperature of the bath and at the higher temperatures the increase is much more rapid.

The following table gives certain examples of such anti-oxidants:

Anti-oxidant material	Approximate per cent required to prevent oxidation in an industrial paraffin bath at 230° F.–240° F.	Approximate per cent required to prevent oxidation in an industrial paraffin bath at 160° F.–210° F.
	Per cent	*Per cent*
Egyptian asphalt	.02	.01
Cuban gilsonite	.04	.02
Petroleum residue asphalt (Ennjay 185)	.006	.003
Isthmian asphalt	.02	.01
Manjak	.02	.01
Utah gilsonite	.02	.01
Fatty acid pitch	.50	.25
Cottonseed pitch	.10	.05
Stearine pitch	.50	.25

It is to be understood that the above examples are representative only and that various other bituminous materials having similar properties may be used.

In addition to the above named anti-oxidants, it has been found that about .6 percent of ceresin breaks down the crystalline structure of the paraffin and tends to make the wax harder and more water resistant. A bath of paraffin wax of the type melting between 133° F. and 138° F., containing about .6 percent ceresin and about .04 percent of petroleum residue asphalt is particularly suited to the paper treating process set forth in the Baum patent above mentioned. This composition possesses the necessary hardness and water-resistance to prevent the skirt of the cap from softening or opening up on the bottle due to absorbed water. The bath will not oxidize, foul or develop objectionable odors even after long continued use at elevated temperatures. Furthermore, in the small percentage used the gilsonite or asphalt does not introduce any objectionable discoloration.

It is to be understood that the wax baths above mentioned are suitable for various uses in the paper and allied industries, such as treating, sizing, waterproofing, impregnating, etc., and that the invention is not to be restricted to the particular use above set forth. Various changes and modifications may be made therein as will be readily apparent to a person skilled in the art. The invention is only to be limited in accordance with the scope of the following claims.

What is claimed is:

1. A wax composition for the treatment of paper comprising a paraffin wax having incorporated therein about .003 to .04 percent of petroleum residue asphalt.

2. A wax composition for the treatment of paper comprising a paraffin wax having incorporated therein about .02 to .04 percent of gilsonite.

3. A wax composition for the treatment of paper comprising a paraffin wax having incorporated therein about .02 to .04 percent of manjak.

4. A wax composition for the treatment of paper comprising a paraffin wax having incorporated therein about .003 to .04 percent of petroleum residue asphalt and a small percentage of ceresin.

5. The method of preventing oxidation of molten paraffin wax baths and hot paraffin oil baths which comprises maintaining therein about .003% to .04% of a petroleum residue asphalt.

6. The method of preventing oxidation of molten paraffin wax baths and hot paraffin oil baths which comprises maintaining therein about .02% to .04% of gilsonite.

7. The method of preventing oxidation of molten paraffin wax bath and hot paraffin oil baths which comprises maintaining therein about .02% to .04% of manjak.

8. A wax composition for the treatment of paper comprising a paraffin wax having incorporated therein about .003% to .5% of an anti-oxidant bituminous material selected from the group consisting of natural asphalt, petroleum residue asphalt, gilsonite, manjak, fatty acid pitch, cottonseed pitch and stearine pitch.

9. The method of preventing oxidation of molten paraffin wax baths and hot paraffin oil baths, which comprises maintaining in the baths about .003% to .5% of an anti-oxidant bituminous material selected from the group consisting of natural asphalt, petroleum residue asphalt, gilsonite, manjak, fatty acid pitch, cottonseed pitch and stearine pitch.

HERBERT G. VORE.