

UNITED STATES PATENT OFFICE

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WAX COMPOSITION

Frederick H. MacLaren, Calumet City, Ill., and
Elmer Wade Adams, Hammond, Ind., assignors
to Standard Oil Company, Chicago, Ill., a cor-
poration of Indiana

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This invention relates to a new composition of matter and, in particular, to a new wax composition.

We have discovered that the addition in small amounts of certain halogenated aromatic hydrocarbons, such as naphthalene, and in particular, chlorinated naphthalene, to hydrocarbon waxes imparts to the latter certain highly desirable properties. The addition of small amounts of chlorinated naphthalene—known commercially as Halowax—to petroleum waxes so modifies the characteristics thereof that the same may be used more effectively than straight petroleum waxes to coat materials such as metallic containers, paper, etc.

Metallic containers used for the packaging of foodstuffs and beverages are generally fabricated with tin plated interiors to avoid corrosion. It has been found that when certain foodstuffs and beverages and, in particular, alcoholic beverages, such as beer, are packed in tin lined metallic containers inadequate protection is afforded by the tin plated lining. This may be due to the acidic condition of the material packed or due to the rupture of the lining during the heating, treating and/or pasteurizing processes. Various types of shellacs, lacquers, and wax compositions have been tried in an attempt to overcome this difficulty with little success.

We have found that mixtures of petroleum waxes with Halowax are well suited to line metallic containers used for packaging foodstuffs or beverages, and in particular, to the lining of cans used for dispensing beer. With the advent of dispensing beer in metallic containers much difficulty has been encountered in providing a liner for the containers which satisfactorily protects the container against corrosion and which will not impart to the beer an undesirable taste and odor. Under the conditions of pasteurization of the beer many of the materials used to line the interior of the cans become ruptured and expose the metallic surface which then becomes susceptible to corrosion.

A suitable material for lining beer cans must pass the following tests:

1. The beer cans at room temperature are filled with the material being tested which has been heated to 250° F. and the melted material poured from the can by slowly rotating the same. The

drained can is then allowed to cool to room temperature and filled with beer, capped, pasteurized at 140° F. for 20 minutes and then allowed to cool for 10 minutes at 60° F. The can is then uncapped and the beer removed. The can is then filled with a solution of 10% copper sulfate and 10% hydrochloric acid and allowed to stand 3 minutes, the copper sulfate and hydrochloric acid solution removed from the can and the can rinsed well with water. To determine how well the material adhered to the surface the can is cut in two and the coating material removed by suitable solvent. Upon examination there must be no copper showing since a deposit of copper indicates a break in the coating material.

2. The lining material must adhere to a strip of tin plate suspended in water at a temperature of 140° F. Any material which will not adhere to the tin plate is considered unsuitable as a beer can lining.

3. The material cooled to 0° to -5° F. for 7 minutes must remain sufficiently pliable to permit bending the same double without breaking.

4. The material must not impart to the beer any odor after being in contact with the same for a period of a week.

We have found that a composition comprising 1.0-15% Halowax and 85-99.0% paraffin wax when applied as a liner in metallic containers of the class described will pass the above drastic tests. The wax used is preferably one which possesses tough, amorphous characteristics and has a melting point above about 150° F. We have found that the amorphous-like wax of about 160-170° F. melting point obtained by pressing slack wax separated from a 50 S. A. E. motor oil distillate from crude oils of the Salt Creek type is particularly adaptable for this purpose. For the purpose of identifying the same, this wax will hereinafter be referred to as was A.

Another type of wax which may be used is a petrolatum wax obtained as a bottom in the settling about a 30% solution of crude petrolatum base stock at a temperature of about 30-70° F. and preferably about 50° F. The petrolatum wax so obtained has a melting point of about 160° F. and possesses characteristics which make it adaptable per se as a container liner, particularly beer cans, although improved results are obtained

when it is used in admixture with Halowax. This wax will hereinafter be referred to as wax B.

We may use wax A and wax B separately or blends of wax A and wax B may be used.

5 The following compositions by way of examples have been found to be effective as liners in metallic containers:

	Example I:	Per cent
	Wax A-----	99.0
10	Halowax-----	1.0
	Example II:	
	Wax A-----	95.0
	Halowax-----	5.0
	Example III:	
15	Wax B-----	99.0
	Halowax-----	1.0
	Example IV:	
	Wax B-----	95.0
	Halowax-----	5.0
20	Example V:	
	50% wax A+50% wax B-----	95-99
	Halowax-----	1-5

25 Suitable liners may be also prepared by the addition of certain condensation products to the mixture of wax and Halowax. Such a condensation product may be prepared by reacting a chlorinated hydrocarbon such as paraffin wax with an aromatic hydrocarbon such as naphthalene in the presence of a catalyst such as aluminum chloride. The product known as Pourax and covered by United States Patents 1,963,918 and 2,057,104 is suitable for this purpose. Pourax treated with concentrated acids, such as concentrated or fuming sulfuric acid, is particularly effective for this purpose.

The following composition has been found suitable.

	Per cent
40	Wax A----- 99.0
	Halowax----- 0.5
	Pourax----- 0.5

45 The foregoing compositions have been found effective in providing the interior of metallic containers, such as beer cans, with a well adhering protective coating.

This new composition of petroleum waxes and small amounts of Halowax is well adapted for coating paper and paper-like objects. It possesses the novel property, depending upon the amount of Halowax in the mixture, of being more transparent or more opaque than the petroleum waxes alone. We have found that the addition of

Halowax in amounts from 0.25% to 2.0% to paraffin wax renders the wax more transparent while the addition of about 2.0% to 20.0% of Halowax to paraffin wax increases the opacity of the latter. It is apparent that this novel property greatly enhances the utility of ordinary paraffin waxes.

While we have described our invention by certain specific embodiments and uses thereof the same are intended to illustrate and not limit the invention, except as defined in the appended claims.

We claim:

1. A wax composition for protecting the interior surfaces of metallic containers comprising 15 85 to 99% of a tough amorphous petroleum wax of about 160 to 170° F. melting point and 1 to 15% of Halowax, said petroleum wax being obtained by pressing slack wax separated from a 50 S. A. E. motor oil distillate from crude oils of the Salt 20 Creek type.

2. A protective coating for the interior surfaces of metallic containers comprising 85 to 99% of petrolatum wax having a melting point of about 160° F. and about 1 to 15% of Halowax, 25 said petrolatum wax being obtained as a bottom in settling about a 30% solution of crude petrolatum base stock at a temperature of about 50° F.

3. A protective coating for the interior surfaces of tin plated beer containers comprising 95 to 99% 30 of a petroleum wax mixture and 1 to 5% of Halowax, said petroleum wax mixture comprising about 50% of a tough amorphous-like wax having a melting point of about 160 to 170° F. obtained by pressing slack wax separated from a 35 60 S. A. E. motor oil distillate from crude oils of the Salt Creek type and about 50% of a petrolatum wax having a melting point of about 160° F. obtained as a bottom in settling about a 30% 40 solution of crude petrolatum base stock at a temperature of about 50° F.

4. A protective coating for the interior surfaces of metallic tin plated containers comprising 99% of a tough amorphous-like petroleum wax 45 having a melting point of about 160 to 170° F., said petroleum wax being obtained by pressing slack wax separated from a 50 S. A. E. motor oil distillate from crude oils of the Salt Creek type, 0.5% of Halowax and 0.5% of a condensation 50 product obtained by treating chlorinated paraffin wax with naphthalene in the presence of aluminum chloride.

FREDERICK H. MacLAREN.
ELMER WADE ADAMS.