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SIZED PAPER

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This invention relates to packaging and particularly to the packaging of various types of products, including edible materials, including packaging materials for use for such purposes, compositions employed with or on such packaging materials, and the methods of producing the articles and compositions.

In accordance with the invention more particularly described hereinafter in the present application, the packaging materials are utilized which carry sizings or waterproofings, such as paraffin, illustrative of the wax sizes, or rosin sizes, illustrative of the resin sizes, which contain virgin glyceride oils, whether of animal or vegetable origin, such virgin oils particularly protecting the paraffin against oxidative change, and also protecting the materials packaged in such packaging materials.

Among the objects of the present invention, there is included such flexible packaging materials, articles packaged within such flexible packaging materials or other types of treated packaging materials, the compositions utilizable in producing such packaging materials, and the methods of making such articles and compositions.

Other and further objects and advantages will appear from the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only, and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accordance with the present invention, the virgin glyceride oils, both vegetable and animal, are utilized in the treatment of packaging materials in order to protect such packaging materials against oxidative change, and also to protect the materials packaged within such packaging materials against undesirable change. The virgin oils used for this purpose are of such character that they contain antioxidants. Most of the virgin oils as ordinarily prepared, and before chemical or other treatments for purification for edible purposes, etc., contain or may be made to contain a substantial amount of antioxidant activity, and may, therefore, be desirably employed for these purposes. As illustrative of the glycerides that can be employed, there may be mentioned more particularly cacao butter, sesame oil, peanut oil, and corn oil, as the more desirable types of materials, and other glyceride oils including olive oil, linseed oil, tung oil, cottonseed oil, cocoanut oil, all may be employed in their natural or virgin condition. The vegetable oils are preferred, particularly those which do not have an undesirable odor or flavor, and are, therefore, preferable to the animal or fish oils which have more pronounced aromas.

The utilization of the virgin oils is particularly important in connection with cellulosic materials, like paper or cardboard, which are waxed or otherwise sized to make them moisture resistant or waterproof. Various waxes are utilized for such purposes, and may all be treated in accordance with the present invention. Both hard and soft waxes can be employed, either individually or in admixture depending on the type of sizing coating that is normally utilized in connection with such packaging materials. The desired virgin glyceride employed for addition to the hydrocarbon type of wax, such as paraffin, ceresin, etc. can be varied, depending on the consistency of the glyceride, as well as that of the wax employed. Where it is desired to increase the melting point of the wax, such as paraffin, a harder type of glyceride may be employed; whereas when a harder type of sizing material, such as a hard wax is utilized, it may be desirable to reduce the consistency of the material by the utilization of a softer type of glyceride. Cacao butter is exemplary of the harder types of vegetable glycerides that can be employed for thus modifying the paraffin wax, for example, without undesirably changing the characteristics of the sizing material.

The proportions of glyceride employed with the sizing material like hydrocarbon wax, or specifically paraffin, may vary over wide limits, depending on the consistency of the final product or composition to be produced, and the manner of its utilization. Generally from 5 to 25% of the glyceride material may be employed with the sizing, such as paraffin, so that from 5 to 25% of a product, such as cacao butter, virgin sesame oil, or the oil pressed from crushed sesame seed, virgin peanut oil, or similar product, may be utilized with from 95% to 75% of paraffin, by addition, for example, to the waxing trough, in which event the finished waxed paper would not only have at its surface a paraffin substantially protected against oxidative change, but in addition when such treated waxed paper is used for the wrapping of bread, biscuits, crackers, candies, etc., there would be a definite retention of original aroma, since in the first place, the paraffin would not oxidize and would not lend its oxidized flavor to the products packaged, such as bread, candies,

etc., and in the second place, such glyceride as would be adsorbed at the surface of the paper or dissolved in the paraffin would be protected against rancidity by the presence of the virgin glyceride oil and its antioxidative character.

By the utilization of the virgin oils with the sizing materials, such as wax, the latter is protected against undesirable oxidative change as indicated above, and at the same time, it is not necessary to have any fibrous vegetable material present as would be true when the vegetative substances are directly incorporated into the paraffin, for example, and in the latter event, the paraffin mixture is not as moisture excluding as is the paraffin compositions containing the virgin oils substantially free from any vegetative fibers.

The glycerides employed may be those obtained either by direct expression of the oil or glyceride in the normal way that is done in commerce, and before any purification or treatment which would destroy the antioxidative character. More desirably, however, the glycerides are produced in a manner to insure a higher antioxidant activity by enabling them during their production to remain in contact for a substantial period of time with the vegetative fibers from which such oils or glycerides are derived.

Thus by grinding an oil-containing seed, nut or fruit for an extensive period of time, so that the expressed oil remains in contact with the vegetative fibers for a substantial period of time greater than is normally done in the expression of oils or glycerides by the methods commonly employed in the art, the oil or glyceride will carry a much higher antioxidant content, and exhibit a greater antioxidant activity. Such virgin materials carrying such increased antioxidant activity are particularly utilizable in connection with the present invention. Illustrating this phase of the matter, cacao butter, particularly when made by first grinding cacao nibs, and subsequently expressing the cacao butter, can desirably be employed for the protection of paraffin or addition thereto in accordance with the present invention, utilizing, for example, 10% of cacao butter with 90% of paraffin.

Various methods of incorporating the paraffin or other sizing material with the virgin glyceride may be employed as by first preparing the virgin glyceride in any of the manners set forth above, and incorporating such glyceride into the paraffin, either while the latter is molten, or by the use of solvents, etc. Or the paraffin, particularly with a volatile solvent, may be employed for extraction of the oil directly from the oil-containing seed, nut or fruit, with subsequent elimination of the solvent if desirable to leave the glyceride distributed uniformly and homogeneously throughout the paraffin material, or the entire composition containing the solvent may be employed for the treatment of the paper, cardboard or other cellulosic or packaging materials, with subsequent elimination of the solvent.

Virgin glyceride oils used with paraffin and other sizing on packaging materials may be obtained either by direct expression from the oil containing seed, nut, or fruit by solvent extraction therefrom, or by first grinding the oil containing vegetative materials in order to obtain a transfusion of the antioxidants from the non-fatty portion of the vegetative material into the glyceride and subsequently expressing or extracting the oil so infused.

Separate and apart, however, from the utilization of the virgin glyceride oils as described, there may also be employed glycerides other than virgin oils which are prepared by infusion with vegetative materials in order to transfer the antioxidants from the non-fatty portions of that vegetative material into the glyceride oil and subsequently using the oil so obtained for addition to the paraffin or other sizing material in the described manner.

For instance, refined cottonseed oil may be infused with soya flour using, for example, 80% of refined cottonseed oil with 20% of soya flour by weight and either grinding the flour in with the oil or heating the flour and oil to approximately 150° F. in order to obtain an infusion of the oil and to transfer the antioxidants of the soya flour into the refined cottonseed oil. The soya flour may then be removed from the cottonseed oil either by filtration, centrifuging, expression, solvent extraction, or other means and the oil so obtained, possessing the antioxidants of the soya flour to a marked degree, may be used in combination with the paraffin or other sizing for the packaging material. The paraffin may, of course, be added directly to the cottonseed oil-soya flour combination and the mixture of paraffin and cottonseed oil filtered from the soya solids. Any other refined glyceride may be used, such as corn oil, sesame oil, peanut oil, lard, tallow, etc., with any other vegetative material such as, for instance, peanut press cake, crushed peanuts, sesame press cake, crushed sesame seed, cottonseed meal, linseed meal, castor bean pumace, oats, barley, hominy, grasses, legumes, brans, etc., in order to transfer the antioxidants of the vegetative material into the glyceride oil and using that infused glyceride oil with the paraffin or other sizing on the packaging material.

Having thus set forth my invention, I claim:

1. A paper material which has been sized with a combination of 90% of paraffin and 10% cacao butter.

2. A wrapping paper material which has been sized with paraffin wax including 5% to 25% of cacao butter.

3. A flexible cellulosic packaging material having a surface coating composed of paraffin and 5% to 25% of unrefined crude undeodorized virgin glyceride oil.

4. A flexible paper packaging material having a surface coating composed of paraffin carrying about 5% to 25% of glyceride oil which has been ground with an oil containing seed material and which carries in solution antioxygens derived from such oil containing seed material.

5. A paper material which has been provided with a water repellent surfacing including a water repellent wax in which has been incorporated a relatively small amount of cacao butter.

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