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METHOD FOR BLEACHING OILS, FATS, AND WAXES

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1 Claim. (Cl. 260—423)

The invention refers to a method for bleaching oils, fats, and waxes.

It has been proposed before now to bleach such products by pure hydrogen peroxide or by a mixture of hydrogen peroxide and other chemicals. It has also been tried to apply various organic and inorganic peroxides to this purpose. With some oils, fats, and waxes relatively easy to be bleached fairly good results have indeed been obtained with this method. But there are products where by the methods known up to now no bleaching or but insufficient bleaching has been achieved. For such cases the method of the present invention may mostly be applied successfully. Thus with experiments of the applicant products could be bleached where any of the methods known hitherto had failed. The new method has the great advantage that the materials bleached take a white to yellow tinge, while the other methods frequently result in giving the very undesirable reddish tinge. Besides this method, when carried through entails an automatic clearing of the oils, fats, and waxes inasmuch as suspended dirt particles are deposited at the bottom of the reaction-vessel. The chemical constants of the oils, fats and waxes changed very inconsiderably in bleaching, consequently the typical properties of the respective substances are thus preserved.

The method consists in oils, fats, and waxes in liquid state being diluted with perpyro-phosphate, preferably sodium perpyro-phosphate, perhaps in combination with hydrogen peroxide and other per-compounds.

The way of procedure in carrying out this method is as follows:

The fat, oil, or wax, after having been cleaned preliminarily, if need be, in the known manner, is heated to a temperature of 50 to 100° C., preferably 60–80° C. Conveniently indirect heating is resorted to; direct heating e. g. by means of steam blown in is unsuitable. The bleaching agent is added slowly whilst stirring to the heated fat, oil, or wax. After a few hours during which the mixture is stirred continuously and the temperature kept constant, the bleaching is ended. It is then allowed to settle—perhaps overnight—and the bleached oil, fat, or wax is withdrawn. In case of need the bleaching may be followed by a washing according to any of the known methods. It has been found that in some cases the intensity of the bleaching may even be increased by using instead of perpyro-phosphate a mixture of perpyro-phosphate and hydrogen peroxide or other per-compounds e. g. benzoyl peroxide. Then one proceeds conveniently adding first the perpyro-phosphate and subsequently the other per-compounds.

Example I

100 kilos of glue-fat were diluted with 1% of sodium perpyro-phosphate and 1% of hydrogen peroxide (30%) at a temperature of 65–70° C. The temperature was kept constant for about three hours whilst stirring continuously. Subsequently the mixture was allowed to settle overnight at about 50° C. and the bleached fat was withdrawn. The previously dark coloured glue-fat had acquired a beautiful bright tone of colouration after bleaching.

Tests regarding number of iodine and saponification effected before and after bleaching showed the following values:

	Raw	Bleached
Number of iodine	52.6	49.9
Number of saponification	212	214

Comparative tests with pure hydrogen peroxide and with benzoyl peroxide plus hydrogen peroxide showed a considerably lesser bleaching action. With pure hydrogen peroxide bleaching a very undesirable reddish tint appeared.

Example II

(*a*) 100 kilos of cotton oil (cotton seed oil) were first of all cleaned preliminarily with 5% trinatrium phosphate solution at 80° C. Thereupon the goods were bleached with 2% sodium perpyro-phosphate for three hours at 70–75° C. whilst stirring.

(*b*) 100 kilos of cotton oil (cotton seed oil) were treated preliminarily as described above. As a bleaching agent served 1% of perpyro-phosphate and 1% of hydrogen peroxide (30%). The goods were likewise bleached at 70–75° C. for three hours. The originally opaque, black-brown coloured oil was completely clear in both cases and took a light-yellow tint. The numbers of analysis were as follows:

	Raw	Bleached
Number of iodine	103.6	103.0
Number of saponification	179.2	177.0

Example III

100 kilos of morocco wax were preliminarily cleaned with diluted sulphuric acid (5 ccmtr. H_2SO_4 per litre) and rinsed twice with water. Then the goods were bleached at 80° C. whilst stirring with a mixture of 4% sodium perpyrophosphate and 3% hydrogen peroxide (30%). Then the sample was allowed to settle overnight at 80° C. Then it was washed with diluted sulphuric acid and water.

After bleaching, the originally dark, yellow wax had acquired a white, slightly yellowish tinge. The bleaching tint could still be improved somewhat by using 4% of sodium perpyro-phosphate, 3% of hydrogen peroxide (30%) and 2% of benzoyl peroxide as a bleaching agent.

Comparative tests with an equal amount of active oxygen in the form of pure H_2O_2 or H_2O_2 plus benzoyl peroxide produced a worse result.

The numbers of analysis were as follows:

	Raw	Bleached
Number of iodine	12.1	10.6
Number of acid	18.3	17.1
Number of saponification	82.4	80.9

What I claim is:

The method of bleaching a material of the group consisting of oils, fats and waxes which comprises subjecting the material to indirect heating to raise the temperature thereof to 50° C. to 100° C. and thereafter slowly adding to the material with agitation an amount of a perpyrophosphate sufficient to bleach the material and continuing the agitation and maintaining the temperature within the stated range until the cleaching is effected.

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