CREAMING LATEX WITH TAMARIND SEED POWDER

BY

EDGAR RHODES AND K. C. SEKAR

As an outcome of the continued search at the Rubber Research Institute for useful cheap creaming agents, British Patent No. 474,651 has been obtained. The text of this patent follows:—

Patent Specification No. 474,651

Application Date: Aug. 24, 1936. No. 23187/36
Complete Specification Left: June 14, 1937
Complete Specification Accepted: Nov. 4, 1937

COMPLETE SPECIFICATION

Improvements in and relating to the Concentration of Latex

We, RUBBER PRODUCERS RESEARCH ASSOCIATION, of 19, Fenchurch Street, London, E.C. 3, a Body Corporate duly organised under the Laws of Great Britain (a communication from Edgar Rhodes and Chandra Sekaran, both British Subjects, and both of Rubber Research Institute of Malaya, of Kuala Lumpur, Federated Malay States), do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the concentration of rubber latex and has more especial reference to processes for the concentration of ammoniated field latex by creaming wherein creaming agents, usually colloid substances, are added to the latex and cause or accelerate its separation into an upper layer of concentrated latex cream and a lower layer containing the serum constituents.

In our Patent Specification No. 430,935, a process for the concentration of rubber latex by creaming is described which involves the addition as a creaming agent of carob seed gum consisting essentially of the hemi-cellulose material extracted from the seeds of the locust or carob bean.

According to the present invention the concentration of latex by creaming is effected by the addition of the seed powder obtained from legumes of the tribe Amherstieae of the sub-order Caesalpinieae, more especially the tamarind tree (tamarindus indica) which tree is very common in South India.

Preferably the creaming agent takes the form of an aqueous solution of powder obtained from roasted and decorticated seeds of the tamarind tree.

In the practice of the invention the seeds are roasted until the husks become brittle and are easily removable. After shelling the seeds are ground and a solution preferably of 3% concentration is prepared by boiling the powder with the appropriate amount of water for one hour.

The solution obtained which is smooth and viscous can be added to the latex in an amount calculated to give 0.3 part by weight of tamarind seed per 100 parts of the water phase of the latex which has advantageously been subjected to a preliminary preservation treatment with ammonia to give it an ammonia content of 0.5% to 1.5%.

It has been found that there is no advantage in employing large amounts of the creaming agent, maximum creaming efficiency being obtained with a comparatively small amount of creaming agent which is illustrated by reference to the results of experiments shown in Table I.

TABLE 1

	Volume of latex taken (ccs.)	Volume of 3% tamarind seed solution added (ccs.)	Parts by weight of tamarind seed per 100 parts latex water phase	Ammonia in latex Per cent.	Dry rubber content of cream after 48 hours. Per cent.
Ex: 1.	465	35	0.35	1.0	59.3
Latex A.	450	50	0.50	1.0	57.4
Ex: 2.	465	35	0.35	1.0	57.8
Latex B.	450	50	0.50	1.0	55.4

It has also been observed that relatively high ammonia concentrations in the latex are unnecessary in order to obtain maximum creaming efficiency, as shown by the examples in Table 2, in which two latices were ammoniated to 0.5%, 1.0% and 1.5% both giving creams of similar dry rubber content in each case.

TABLE 2

	Volume of latex taken (ccs.)	Volume of 3% tamarind seed solution added (ccs.)	Ammonia in latex Per cent.	Dry rubber content of cream after 48 hours. Per cent.
Ex: 1.	465	35	1.5	57.2
Latex A.	465	35	1.0	57.8
	465	35	0.5	57.9
Ex: 2.	465	35	1.5	58.9
Latex B.	465	35	1.0	59.3
	465	35	0.5	59.2

Tests have also shown that the creaming agent is best added in the form of a strong solution in order to obtain maximum creaming, a 3% solution having been found most suitable. The results of experiments using the creaming agent in the form of 2 and 3% solutions respectively are shown in Table 3.

TABLE 3

	Volume of latex taken (ccs.)	Volume of tamarind seed solution added (ccs.)	Tamarind seed solution added at a percentage concentration of	Parts by weight of tamarind seed per 100 parts latex water phase	Dry rubber content of cream after 48 hours. Per cent.
Same Latex	225	25	2	0.35	57.2
Crop	93	7	3	0.35	59.2

The following is an example of carrying out the process:—

A quantity of tamarind seed was roasted until the seed coat became brittle and rubbed off easily. The kernels were ground into a fine powder, and the creaming agent prepared by adding 307 grammes of the powder to 2¼ gallons of water and boiling for one hour. The resulting solution was then added to 31 gallons of field latex having a dry rubber content of 30.7% ammoniated to 1.27% and the mixture allowed to cream in a cylindrical vessel arranged so as to permit of the cream being run off without disturbing the serum. After creaming for 38 hours approximately 16.5 gallons of concentrated latex were obtained having a dry rubber content of 58.3% and an ammonia content of 0.6%.

By the present invention improved processes for the concentration of latex by creaming are obtained providing creams rich in rubber after a period of from 2 to 3 days with small quantities of a creaming agent which is readily and cheaply obtained, and which tends to inhibit or reduce after-creaming and furnish a stable product of high dry rubber content.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A process for the concentration of rubber latex by creaming, consisting in the addition to the latex as creaming agent of a material obtained from legumes of the tribe Amherstieae of the sub-order Caesalpinieae, more especially the tamarind tree (tamarindus indica).

2. A process for the concentration of rubber latex by creaming according to Claim 1, wherein the creaming agent takes the form of an aqueous solution of powder obtained from roasted and decorticated seeds of the tamarind tree.

3. A process for the concentration of rubber latex by creaming according to Claim 2, wherein the aqueous solution contains approximately 3% of the seed powder.

4. A process for the concentration of rubber latex by creaming according to Claim 3, wherein the creaming agent is added to the latex in a proportion giving approximately 0.3 part of seed powder per 100 parts of the water phase of the latex.

5. A process for the concentration of rubber latex by creaming according to any of the preceding claims, wherein the creaming agent is prepared by roasting the tamarind seeds until the husks become brittle, thereafter removing the husks, grinding the seeds and boiling the powder so formed in the appropriate amount of water.

6. A process for the concentration of rubber latex by creaming substantially as described.

7. Rubber latex concentrated to a dry rubber content of over 55% when prepared by the creaming process according to any of the preceding claims substantially as described.

This patent will shortly be registered in the Straits Settlements, and the various States of Malaya. Producers are asked not to overlook the broad terms of British Patent No. 226,440 of Isidor Traube.

Kuala Lumpur

9th February, 1938