PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in the Preparation of Purified Plantation Rubber

I, THOMAS ADAM CLAYTON, a British subject, of 23, Albemarle Street, London, W.1, do hereby declare the nature of this invention (communicated by United States Rubber Company, of 1230, Sixth Avenue, New York 20, United States of America, a corporation organized and existing under the laws of the State of New Jersey, United States of America) 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 preparation of purified plantation rubber.

The rubber derived from natural latex may be purified in known manner by creaming or centrifuging the latex one or more times to remove non-rubber serum constituents before recovering the purified rubber from the latex. The rubber may be recovered from the latex by acidifying the latex, sheeting the coagulum, and drying similar to the production of pale crepe. The temperature in the crepe house varies from about 70° F. to 110° F. and it takes four or five weeks to dry the purified crepe from creamed or centrifuged latex as compared with ten days to two weeks drying for conventional crepe direct from the acid-coagulated latex. The reason for this is the removal, in the purification, of the non-rubbers through which the moisture diffuses to reach the surface of the sheet in conventional drying. Such increased drying time in the preparation of crude purified rubber crepe has rendered the production of plantation purified rubber unduly expensive and, in fact, practically inadvisable or impossible.

It has been suggested to dry purified rubber latex in pans at temperatures not over 50° C. to give films less than 0.35 inch thick or to spray the purified latex with warm air at a temperature not over 50° C. on a belt, and to further to wash the thus sheeted films with water, and dry the same. While the drying of such films is relatively faster than in producing crepe, the small amount of rubber recovered with a given amount of equipment does not appear to make such processes commercially feasible.

According to the present invention, the purified latex is formed into a foam as by aerating, beating or whipping the latex, and the foam is then sheeted by pouring in pans or troughs or on belts or other drying containers for forming the foam into sheets, and the sheeted foam is dried at ordinary temperatures, or preferably at temperatures above 50° C. to 75° C. When drying at these higher temperatures, the time of drying is only a matter of a few hours and in such short period the elevated temperature does not injure the purified rubber. The sheet may be washed with water, as by spraying, after it has become solidified and while still wet, or after complete drying to give further improved electrical properties. The portion of the foam next to the exposed surface of the drying container will generally collapse to a certain extent, but this is immaterial as it is not necessary to maintain the foam structure intact similarly to the manufacture of finished sponge rubber articles since the dried purified rubber sheets in any case will be compressed and generally baled for shipment.

In carrying out the present invention, the natural rubber latex, to which small amounts of preservative and/or antioxidant if desired may be added, is purified by creaming or centrifuging one or more times, or is purified by dialysis or by electro-decantation in known manner. The purified latex is then formed into a foam as by heating or aerating or whipping, or a combination of the same, in a conventional foaming apparatus or in an apparatus such as shown in British Patent 541,289 for producing latex foam for the manufacture of so-called foam

[Price 2/-]

Price 2s. 2d.

sponge articles. The purified latex may contain a small amount of added volatile-base soap, such as ammonium or volatile amine (e.g. mono- or di-methyl or ethyl amine) oleate, stearate, palmitate or abietate to facilitate beating into a foam, if desired, but such soap addition is not necessary. Unlike the manufacture of finished foam sponge rubber articles where gelling or setting agents and the usual compounding ingredients such as accelerators, sulfur, zinc oxide and other compounding ingredients are added to the latex or the foam, the purified latex in the present invention is not compounded except for the small amount of usual vegetable mucilage creaming agent if the latex is purified by chemical creaming, and the optional addition of preservative, antioxidant and/or volatile base soap to aid in the foaming. The thus formed purified latex foam, which should occupy a volume two or more times the volume of the latex before foaming, is formed into individual sheets by pouring into pans or is formed into continuous sheets in an apparatus similar to that shown in British Patent 572,166, and the sheeted foam is then dried to crude purified rubber sheets at temperatures up to 50° C., or preferably from 50° C. to 75° C. At the latter elevated temperatures, drying takes place in a few hours. The sheet may be washed with water, as by spraying, after drying sufficiently to solidify the latex and before or after complete drying. After drying, the sheets are stripped from the pans or other drying containers, or if formed in a continuous manner are cut to the desired size, and are then piled and compressed to a usable bale of purified plantation rubber.

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

1. The method of preparing crude purified plantation rubber which comprises purifying natural rubber latex, which may contain preservative and/or antioxidant, by one or more creaming or centrifuging operations or by dialysis or by electro-decantation, forming the purified latex into a foam, with or without added volatile base soap, in the absence of gelling or setting agents and the usual compounding ingredients, and sheeting and drying the foam to form purified plantation rubber.

2. The method of claim 1 in which the sheeted foam is dried by heating to from 50° C. to 75° C.

Dated this 20th day of May, 1949.

T. A. CLAYTON.

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* C L M S *

T. A. Clayton