

MEMORANDUM

On the basis of the apparent fact that some portion of the "X" in contaminated chicle occurs as particulate matter, and that it may be removed in part during the process of filtration, it would seem that the most effective filtration methods should be employed to this end. None of the members of the staff of this Laboratory presume to speak critically of any of the methods known to be in use in the industry, nor to give advice as to other methods. We believe that the technical representatives of the industry know more than anyone else about the specific problems involved in the process. On the other hand consideration may not have been given previously to this aspect of the matter, and it may well be that improvements can be effected. The comments that follow, therefore, are merely for the purpose of provoking discussion, and action, if the latter is desirable.

I. It appears that this year's crop of chicle from certain areas is so high in "X" as to present a real problem. We believe on incomplete evidence, to be sure, that this problem can readily be solved so far as subsequent crops are concerned. The use of certain present shipments, however, could best be accomplished without danger or financial loss, if a suitable means were available for removing the "X". Inasmuch as the danger of marketing a finished product high in "X", is one which involves the entire industry, we believe that the technical talent and information on the question of removal of the "X" by filtration or otherwise should be pooled by the members of the group, and that the information should be augmented, if necessary, by certain items of plant experimentation.

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Moreover, outside technical information should be obtained if required, or if likely to be useful.

2. The cost of any method which might be suggested should be considered in relation to its temporary usefulness, since it is believed that this specific problem is of purely temporary nature. Thus, unusually costly equipment should not be employed if the results can be accomplished by simpler and cheaper methods. With these reservations, certain suggestions are offered.

3. Presumably the passage of material through a filter press depends primarily upon the nature of the filter cake, and to some degree, upon the size of the orifices in the screens. It may be that some change in the character of the filter cake or of the screens would diminish the proportion of particulate matter passed through. (In this connection, perhaps the portion of material which passes through the presses before the cake is well formed should be refiltered. Or perhaps that is the present practice.) Obviously greater pressure might be required to penetrate a finer filter cake or screen. Perhaps this could be accomplished by a slight elevation of the temperature of the gum, and consequent reduction in the viscosity of the mass, without an elevation of pressure.

4. It seems probable that preliminary settling tanks, maintained at suitable temperatures would bring about the deposition of most of the particulate material. This should be a relatively inexpensive method, if satisfactory.

5. Centrifugal removal of the particles, while expensive, should be effective. Such equipment as is used to clear varnishes, is available for the purpose, and might be found to be the most satisfactory means. Sharples equipment, for example, has been designed for such use.

Discussion

Inasmuch as the suggestions above are based partly on assumptions, it is suggested that some experimental steps be taken to determine whether or not they give promise of usefulness. For example, what proportion, if any, of the "X" which is present in some of the most heavily contaminated material will settle out at various temperatures and over various periods of time? This question we believe could best be answered in one of the plants where steam jacketed equipment is available, and where other items of equipment could be installed quickly on an experimental scale.

Meanwhile we shall attempt to find out what we can as to the nature of the particulate "X" and as to the size of the particles. We shall also communicate with such sources as are available to us as to persons whose technical experience and training may qualify them to give information on this problem.

We shall report the results of our inquiry at the meeting proposed by Mr. Yates for December 15th or 16th, and such action as may seem to be justified may be taken at that time.

Signed: _____

Director, Kettering Laboratory of
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