

A machine to remove the impurities in field latex, claimed to be a revolutionary development that saves labour and money for centrifuged latex processors, was test demonstrated by its makers, Filtron India Ltd., at a latex processing plant near Palai, Kerala on January 9th and 10th this year. DR. M.G. KUMARAN, Deputy Director, inspected the machine on behalf of the Rubber Board and conducted the tests. He has certified that if the field latex clarifier is used along with a centrifuging machine, not only does the quality of cenex improve but there will also be substantial saving in labour and money, including foreign exchange. His report:

The FILTRON Field Latex Clarifier is a sturdy machine made of stainless steel. The total weight of the machine with 24" dia is around 780kg including the bowl. The bowl weighs nearly 110kg. It has a speed of 2400 rpm. The feed and discharge are at the top of the machine through separate nozzles. The clarified latex can be elevated automatically to a height of 8-10 ft. No foundation is required to fix the clarifier. It is self-mounting. The machine is run with 7.5 HP motor.

Performance evaluation

The clarifier was test run for a period of 12 hours. The machine was stopped after a run of 3 hours to remove the sludge. The sludge was deposited inside the bowl as stiff mass. The bowl surface could be cleaned just by spraying water. The sludge did not contain any rubber particles. The total quantity of latex clarified in 12 hours was 7400 kg, the average rated output being 616 kg/hr. The sludge removed during the above period weighted 61 kg wet, which is equivalent to 33.6 kg dry sludge.

The average sludge content of the field latex after addition of DAHP was around 0.45% which on clarification was reduced to 0.038%. The average sludge content was around 0.1%. By the process of clarification, the reduction in the concentration of ammonia was only marginal. It was seen from the present study that the ammonia content was reduced from 1.1% to 0.96% only during 4 hours run. Total excess overflow through the air vent was around 120 kg field latex in 12 hours i.e. 10 liters/hr. The ammonia content of this latex was around 0.8%. Therefore, the latex can be added to the main bulk in the tank in due course without any

wastage. The removal of sludge and cleaning of the bowl required about 40 liters of water in each run and the washings contained only 0.67% rubber. A total of only 30 minutes is required for stopping the machine, removing the sludge, cleaning and restarting of the machine. One worker is sufficient for the whole operation. Since there are no discs in the bowl as in the case of centrifuging machine, the cleaning takes only minimum time.

The results could be summarised as follows :

1. Sludge in the field latex - 0.45%
2. Sludge in the clarified latex - 0.038%
3. Sludge in the normally settled latex - 0.1%
4. Rate of clarification (wet) - 616 kg/hr.
5. Quantity of sludge removed/hr - 2.8 Kg(dry)
6. Average reduction in the concentration of ammonia due to clarification - 0.05%

Advantages of clarifier

1. Improves the quality of centrifuged latex: The centrifuged latex processed from clarified latex contains only a minimum quantity of sludge. The length of processing had a minimum impact on the sludge content. The average sludge content of centrifuged latex processed from clarified latex was only 0.0027%. However, the centrifuging of normally settled latex gave widely varying sludge content depending on the time in the centrifuging machine. A minimum sludge of as low as 0.006% to as high as 0.015% was observed with cenex ob-

tained by centrifuging of normally settled latex. The low sludge content of centrifuged latex processed from clarified latex improved the quality and clarity of cenex.

2. Can increase the time of running of centrifuging machine : From the experiments it was seen that the average sludge content of clarified latex was around 0.038% and that of normally settled latex around 0.1%. In the present study, the centrifuge was run with clarified latex continuously for 9½ hours and 7½ hours respectively on two occasions. The sludge deposited in the bowl during the average period of 8½ hours was found to be almost equivalent to the sludge normally deposited in 3 hours run with normally desludged latex. The average sludge deposited in the bowl during 9½ hours run was 6.1 kg whereas the sludge deposited in 3 hours run with normally settled latex was around 5.5 kg. This indicated that, if clarified latex is used for centrifuging, a maximum of only one bowl change is required in a shift. Thus, it will increase

LATEX CLARIFIER A BOON TO PROCESSORS

the production and at the same time reduce the labour required for cleaning the bowl.

3) Assessment of sludge lost during processing: In the centrifuging factories, latex is desludged in the reception tank after addition of DAHP and overnight settling. It was seen that such settled latex contained a high percentage of sludge (0.1%) and therefore the centrifuging machine could not be run for more than 3 to 3½ hours due to choking of the machine. Further the sludge deposited in the reception tank is

due to the presence of sludge in the skim latex. However, in the case of skim latex obtained by centrifuging clarified latex, the contamination of sludge is very little, and therefore, crepe produced will be of better quality.

5) Economic advantages

a) Centrifuging machine with only a single bowl: Under the normal condition of centrifuging using settled latex, the machine is run for 3 hours. It will take a minimum of 1 hour 30 minutes to restart the machine after cleaning the

put is only 8460 kg latex which is equivalent to only 2157 kg DRC cenex. Compared to this, a machine with a single bowl can give 11.1% more production provided clarified latex is used.

b) Centrifuging machine with two bowls: The maximum running hours that could be achieved in a centrifuging machine with spare bowl is only 18 hours if normal desludged latex is used. However, the running time could be increased to an average of 21.5 hours if clarified latex is used for centrifuging. In other words, an increase in production of 19.4% could be achieved by using a clarifier in the production line.

Conclusion

The clarifier appears to be strong and silent in running. By using a clarifier, maximum advantage is obtained for those who purchase centrifuging machine with only single bowl. If a clarifier is used in the process line, the production of cenex from the machine could be more than that from a machine with two bowls. Thus it is possible to save foreign exchange towards the cost of the spare bowl and at the same time ensure more output compared to a machine with two bowls.

Summing up, if a clarifier is used along with a centrifuging machine:

- 1) The output can be increased;
- 2) Considerable reduction in labour could be achieved;
- 3) Quality of cenex could be improved;
- 4) Wastage of latex along with the sludge could be minimised;
- 5) The quantity of sludge wasted could be clearly assessed;
- 6) The quality of skim/skim crepe could be improved;
- 7) Foreign exchange could be saved by reducing investment on spare bowl for the centrifuge.
- 8) Wear and tear can be reduced due to minimum stoppage.

The present assessment, however, is based on a one-day study. Further trial runs are necessary before recommending the machine among latex processors.



Examining the Filtron Latex Clarifier

in the form of a slurry. Usually part of the sludge is allowed to drain into the skim latex tank. Some quantity of preserved field latex will also be lost along with the sludge. Removal of the sludge and cleaning of the reception tank required more labour and time. Further it is difficult to assess the quantity of latex and sludge lost from the reception tank. But by clarifying operation, the sludge is settled in the bowl as a stiff mass containing little latex. Therefore the assessment of the sludge lost due to clarification can be done correctly. Since the sludge is obtained as a solid mass, its removal is also easy and quick.

4) Improved quality of skim crepe: As earlier stated, in the normal settling, a part of the sludge along with some latex is allowed to drain off into the skim latex tank. Such latex on coagulation and creping gives crepe with white spots

bowl. Thus, machine with only a single bowl could be run for a maximum of 16 hours 30 minutes in a day. With 10.5 cm feed tube, the maximum throughput of the machine (LRH 410) is around 470 kg/hr. Thus the throughput in a day is 7755 kg latex. At 85% efficiency, the production is around 1977 kg DRC cenex if the DRC of the field latex is 30%. But if clarified latex of 30% DRC is used for centrifuging, the machine can be run for 8 hours continuously without any difficulty and hence the total running time in a day will be 20 hours. Thus, the total throughput is 9400 kg clarified latex per day or, at 85% efficiency, the production of cenex is equivalent to 2397 kg DRC. In other words, about 21.2% more production could be achieved if a clarifier is used. It may be noted that even with a spare bowl, by using normally desludged latex, the machine could be run for a maximum of 18 hours and the through-