

# REPORT OF CLARIFICATION AND FILTRATION COMMITTEE:

## SEASON 1930.

Mr. W. T. Latham read the report of the above Committee as follows:—

The Committee this year have not attempted to give very full details of the operation and equipment of the filtration and clarification departments, as this has been done very carefully in the past, but have just tried to continue the work done in previous years.

Conditions during the last year were very good on the whole and there appears to be a continued improvement in general working. The raw juice leaving the mills is now in most cases double screened, first by the ordinary scraper crush strainer and thereafter by Peck, Mitchell or Universal vibrating screens. These latter two types are coming into more general use. The use of these screens eliminates early in the process large amounts of solids, thereby helping the clarification by preventing any chance of these dissolving, especially the waxes.

### Juices:

It is now becoming the general practice to heat the screened juice to 140° F. and then adding about 90% of the milk of lime. The limed juice is then sulphited to 3 grams and over, of SO<sub>2</sub> per litre, run into correcting tanks with stirrers, limed to about 8.7 pH and phosphoric acid added to bring the reaction to 7.4 to 7.6 pH. The juice is then pumped through juice heaters where it is heated to about 212° F. and then sent to the subsidiers. The clear settled juice then goes to the evaporators, the muds from the subsidiers being in many cases heavily diluted and settled. They are filtered in nearly every case by plate filter presses, the clear filtered juice going to the raw hot juice. Filter press capacity in the factories reporting is mostly on the small side. The average is 76.3 square feet of filter area per ton of cane per hour, and the Committee consider that this should be not less than 100 square feet per ton of cane per hour. Some factories suggest even 120 square feet to allow of filtration of refractory juices.

**Syrups** do not appear to be treated in any way except settling. The syrup bottoms are returned to the juice for further treatment.

**Molasses and Wash** in nearly every case are heated or blown up and simmered. Especially is this so where factory white sugar is made.

**pH.**—The following are the averages for the factories reporting:—

Tempered juice . . . . .	7.53 pH.
Filtered juice . . . . .	8.43 pH.
Clarified juice . . . . .	7.76 pH.
Syrup . . . . .	7.0 pH.
Molasses . . . . .	6.77 pH.

**Filter press area** per ton of cane for these factories:—76.3 square feet.

### Temperature:—

Preheated juice . . . . .	156° F.
Final heated juice . . . . .	210° F.

### Chemicals per ton of Sugar:—

Lime (CaO) . . . . .	73.5 lbs.
Phosphoric Acid (40% P <sub>2</sub> O <sub>5</sub> ) . . . . .	11.24 lbs.
Sulphur (S) . . . . .	28.5 lbs.

The chemicals have been increased during the last few years, due to having to meet the Pure Foods Act, requiring more efficient clarification.

Treacle sugars are generally worked off by mixing with the first massecuite in raw sugar factories, but are also melted and returned to the syrup tanks. It is possible, with careful clarification and centrifuging, to produce a treacle sugar which will conform to the Pure Food requirements.

The Committee had an idea of getting very full details of the filter cloth used, so as to try to arrive at a standard specification, but as not enough factories reported and the details given were not full enough, it has been left out. We hope, however, that this matter will be pushed next year. If most factories took cloth of a standard specification, it should be possible to order larger quantities and get reduced prices.

With regard to metals used in evaporators and pumps, some of the factories are trying new metals for the evaporator tubes, and the use of stainless steel for pump rods, etc., is growing.

A new type of settling tank has been tried out at Mount Edgecombe, which has been giving excellent results on 1st Carbonatation Juice, and which should do well in sulphitation factories. It has been patented.

The staff at Gledhow have sent in a short report on the Dorr Clarifier. This will be interesting, as the Dorr's are doing good work at that factory.

### Committee on Clarification:—

W. Foster.  
P. Murray.  
E. Camden-Smith.  
M. Viger.  
J. W. Wickes.  
J. Rault, Convenor.