

COMMITTEE ON STANDARDIZATION OF CHEMICAL CONTROL

ANNUAL REPORT FOR SEASON 1936-7

The principal task of the committee for the past year, the revision of the official methods of sampling, testing, and calculation of results, has not yet been completed.

The past year, in view of the general reorganization of the financial relations within the industry that has been brought about after prolonged negotiations, has been even less favourable for any special work than the preceding year.

However, this long-postponed work of revision has at last been actively begun by a special committee appointed by the Council consisting of Messrs. Dodds, Dymond, Hayes (co-opted member), Hedley, Moberly, and Rault. This committee has already had several long sessions at the Experiment Station, with Mr. Moberly acting as secretary. The work should be finished within the next two or three months.

The full committee has met twice during the year, on June 23rd., and February 3rd.

INTERNATIONAL COMMISSION FOR UNIFORM METHODS OF SUGAR ANALYSIS.

The ninth general session of this commission was held in London on August 31st., 1936, and following days. There were 80 delegates present, rather more than half of them from the United Kingdom. Dr. Frederick Bates, of the U.S. Bureau of Standards, was President. The following other countries were also represented by one or more delegates:—

U.S.A., Hawaii, Puerto Rico, Canada, British West Indies, Australia, India, Mauritius, France, Belgium, Holland, Germany, Poland, Czechoslovakia, Sweden, Denmark, Italy, and Yugoslavia.

South Africa was entitled to send two delegates, but these were conspicuously absent. It is very advisable for any country having extensive sugar interests to be represented at these International Commissions, since methods of analysis are decided for international use that might have important consequences in the valuation of export sugar or molasses.

The next meeting of the Commission is fixed for 1940 at Berlin.

STANDARD NORMAL WEIGHT.

The report on Subject No. 8 of the International Commission "The 100°S Point of the Saccharimeter" dealt with the normal weight for the French Sugar Scale only which was fixed at 16.269 ± 0.002 grams instead of the former 16.29 grams.

The position concerning the normal weight for the International Sugar Scale was clarified how-

ever by the report and discussions on Subject No. 11, "The Elimination of Errors due to Lead Clarification in Polarizing Raw Sugars." The following recommendation was carried "If no change in the sugar scale is or has been made, clarification shall be effected with standard lead subacetate solution (Third Session of International Commission, Paris, 1900): but if a change from the Herzfeld-Schoenrock scale to the International Sugar Scale is made, then clarification shall be effected with standard dry lead subacetate (Horne's Dry Lead, U.S. Registered Trade Mark)."

This means that the normal weight of 26 grams is correct with the old Herzfeld-Schoenrock scale and the use of lead subacetate solution, or alternatively with the new International Sugar Scale and dry lead subacetate. If, however, the old scale is used with dry lead the normal weight should be not 26 grams but 26.026 grams.

The new International Scale has been standard on all new saccharimeters supplied or scales replaced by the makers during the past year or two; previous to that the Herzfeld-Schoenrock scale was supplied. If any factory is in doubt which scale is affixed to their saccharimeter they should inquire of the supplier.

The difference between the two standards is only 0.1 per cent, which is normally of no consequence in the testing of sugar cane juice or low grade products, but in the polarization of sugars could lead to a discrepancy of the order of 0.1° polarization.

A further consequence is that all users of new or reconditioned saccharimeters fitted with the International Scale should have all their old quartz control plates re-calibrated to conform to the new scale.

H.H.D.

Committee on Standardization of Chemical Control:

R. M. BECHARD.
L. BLACKLOCK.
W. BUCHANAN.
P. L. DRAEGER.
G. C. DYMOND.
W. H. FOSTER.
F. W. HAYES.
E. P. HEDLEY.
G. S. MOBERLY.
J. RAULT.
M. VIGER.
H. H. DODDS, Convener.

Experiment Station,
South African Sugar Association,
Mount Edgecombe, Natal,
March, 1937.

Mr. DODDS read the Report of the Committee on Standardisation of Chemical Control, and continued: There are perhaps one or two matters I should have added to this very brief Report. One matter to which Mr. Moberly has called attention is the fact that there is in existence a South African Standards Institution, which is apparently an offshoot of the British Standards Institution. They sent us recently a copy of their first Annual Report, and we see that among other matters they have dealt with standard specifications for sugar flasks and Kohlrausch flasks and they approved of certain specifications that were submitted to them by the British Standard Institution. In the former case the sugar industry was consulted through the Experiment Station, but we feel that it would be well for us to be consulted in all such matters that affect the sugar industry and this view has been brought to the attention of the South African Standards Institution.

With regard to the International Society of Sugar Technologists, there is not much to report, except that the very voluminous proceedings of the Queensland Conference have been circulated during the year, and is in the hands of all members in good standing, and that the South African membership is slightly increased. It was at one time fixed on a quota basis of 25 members, but now the quota has been removed, and our membership stands at 30. The International Society gives a cordial invitation to all members of our local Technologist's Association to join the International Society.

The PRESIDENT: Thank you, Mr. Dodds. The report is now open for discussion.

Mr. BECHARD: We are all aware of the fact that this arrangement about the use of the old standard and the new standard will be a subject to a compromise, and reading from the Report it looked very much as if the compromise had not been arrived at a complete breakdown would have taken place. At the same time, I want to point out the fact that whereas this compromise may be quite satisfactory with 96 polarization, it does not apply quite so forcibly to the class we manufacture here, which is nearer 99° polarisation. What I want to say is that although the error due to the volume of lead precipitate may be approximately lower when dealing with a polarisation of 96, it is not the case that dealing with a higher polarisation the volume of precipitate is far smaller, and the corrective error not quite so great. Therefore it appears to me that, for local use at any rate, we should comply more with the provisions recommended by Bates, or really by the American Industry, which, to my mind, hold the proper view. It was largely, of course, due to the entrenched position of the refinery interests in Great Britain that this compromise was arrived at. However, there is nothing said in the report about methods

that were to be initiated this year. I take it that the recommendation passed last year is still in operation this, and that this year we are going on with the dry lead method. On this point it would be interesting to a good many members to know that it is quite possible and a practical proposition to prepare dry basic lead acetate from the existing stocks of lead acetate and litharge. It is rather a lengthy business. It takes a long time to dry, but at the same time it is quite feasible, and I have had very good results from home-made dry lead acetate, which, if anything, appears to be better than the imported stuff, which gradually hardens from carbon dioxide from the air.

Am I right in saying that the recommendation passed last year with regard to dry lead is still in operation.

Mr. DODDS: I take it that in view of the report of the International Commission the motion is in abeyance for the moment, but it should be discussed as early as possible by our Committee on standardisation of chemical control and a positive recommendation made. But we have not yet had an opportunity of meeting after a full consideration of the Report of the International Commission.

Mr. BECHARD: I don't think it arises from the Report of the International Commission; it arises from our own recommendation of last year that in all products we were to go on with the normal weight method together with dry lead clarification. This applied more to the testing of juice for the purpose of determining the juice sucrose per cent cane.

Mr. DODDS: To my mind that would entail a change to the normal weight of 26.026 grammes unless the saccharimeter scale had been revised. However, the whole matter is under discussion at present, and the only thing is to wait and see what the result is.

With reference to the preparation of dry lead, there is one point to be kept in mind. This product is generally referred to as "Horne's Dry Lead," which is sold under a registered U.S. trade mark. What Dr. Horne would have to say about the general private manufacture of his protected product I don't know. It certainly should not be offered for sale unless it is the actual material made by his firm. The official method prescribes Horne's Dry Lead.

Mr. BECHARD: In view of Mr. Dodd's opinion, I suggest that the matter is really a matter of immediate interest and should be clarified very soon in view of the coming season. Year after year we have methods waiting because we have initiated them during the middle of the season, and we carry on to the next year. That has been going on for some time. With Jackson & Gillis' method No. 4 which has been recommended for

general adoption I am not too certain about the position.

Mr. DODDS: The position regarding Jackson & Gillis' method is, as you know, that it has been approved of by ourselves for years past, and I think it is in general use, but I cannot say that it has yet been formally agreed to by the Millers' Association, who have been written to repeatedly in the matter without our having received any definite answer. But I think we have in effect made the change general-ourselves; as far as I know most factories are using it but they are not compelled to under the present agreement. As Mr. Bechard says, it will be necessary to have a meeting of the full Committee on Chemical control as soon as possible. We have been waiting for the completion of the work of the sub-committee in drafting the revised methods, which is taking a good deal of time. It should be completed now very shortly, but it may be necessary to have a meeting of the full Committee even before the draft revision is ready.

Mr. BIJOUX: If the normal weight is adopted,

I would like to know whether it will be 26 or 26.026 grams.

Mr. BECHARD: According to the saccharimeter, the actual normal weight is only of interest in the case of sugar. In the case of juices it is absolutely immaterial.

Mr. DODDS: I don't think we can do anything more in the matter at present, excepting for this meeting to make any recommendation it wishes to the incoming Committee.

Mr. HAYES: The discussion has wandered, Mr. Chairman, in that the actual method for polarisation of sugars was not discussed by the Chemical Control Committee. The adoption of dry lead referred solely to the analysis of juices. Dry lead was not adopted for the polarisation of sugar, and at present our standard method is still that as laid down in 1931 Proceedings, i.e. the use of lead sub acetate solution as defecant.

The PRESIDENT: I will ask you to join me in a vote of thanks to Mr. Dodds for reading this Report. (Applause).