

The American Oil Chemists' Society

Notes and Correspondence

Standardization of Lovibond Glasses

(Investigation in Cooperation with the American Oil Chemists' Society)

Report for May, 1928

By IRWIN G. PRIEST

1. *Investigation of Sixty-five 35-Y Glasses Submitted by A.O.C.S. August, 1927.*

Considerable further progress has been made in preparing the report on this investigation. (Priest).

2. *Further Calibration of Red Glasses in Bureau of Standards Set, B. S. 9940.*

(Cf. Sec. III of Report for April.)

Three more glasses (maker's marks, 0.08, 1.0, and 5.6) in Bureau of Standards Set, B. S. 9940, have been carefully re-examined by direct color comparison with other glasses in the same set. The following table summarizes the results of a large number of observations by two observers:

Lovibond Red Numerals

(1) As engraved by the maker (N)	0.08	1.0	5.6
(2) As computed directly from spectral transmission by method of Priest and Gibson (N'')	0.154	1.17	6.16
(3) As found by direct color comparison with other glasses in same set:			
(a) Assuming the N'' values of Priest and Gibson for these other glasses	0.146	1.22	6.21
(b) Assuming the N'' values of Judd and Walker for these other glasses. (Cf. Sec. III of Report for April, 1928).....	0.152	1.21	6.25
(Judd, Walker)			

A study of the relation between transmissions of the glasses for certain particular wave lengths and

the numerals assigned by Priest and Gibson has been begun. Log

T has been plotted against N''

T₅₉₀

for wave lengths 570, 560, 550, 540, 530, 500 where T 590 is transmission for wave length 590 and T is taken in turn as the transmission for the above mentioned wave lengths. (Priest, Riley).

3. *Construction of Instrument for Using the Lovibond Glasses.* (Cf. Sec. IX of Report for March, OIL AND FAT INDUSTRIES, p. 156, May, 1928.)

The mounting for the glasses (item 2 in Sec. IX of Report for March) was nearly finished about May 1st. Since then, an improvement permitting of more convenient reading of the scales has been designed. This consists of an adjustable mirror mounted so that the Lovibond numerals indicating the setting can be set by the observer without his leaving the ocular. This addition to the instrument is now being constructed.

Considerable work in detailed design and construction remains to be done in order to complete and perfect the arrangement for color grading oils. This mounting for the glasses must be combined with a Martens photometer, a source of artificial daylight, and a mounting for the oil sample. The principal task in this is the careful design of lenses and biprisms to direct the light through the oil sample and the glasses in such a way as to give a perfect photometric field in the Martens photometer. (Priest).

4. *Preparation of Paper on Effect*

of *Temperature on Color of Lovibond Glasses*.

A preliminary draft of paper describing the investigation mentioned in the Report for March (Sec. II, OIL AND FAT INDUSTRIES pp. 152-153, May, 1928) has been prepared. (Judd).

5. *Tests of Color Sense Conducted for the American Oil Chemists' Society at New Orleans*.

The principal work of the month has been the tests of color sense conducted at the request of the A.O.C.S.

These tests were undertaken at New Orleans in connection with the A.O.C.S. Convention. The tests consisted of three kinds as follows:

- (1) The Ishihara test.
- (2) Test of ability to perceive small differences in Lovibond red at 35-Y, 7.6R on the Lovibond scale. (An improvement and extension of the method described in OIL AND FAT INDUSTRIES, pp. 63-73; March, 1928.)
- (3) The color grading of six samples of oil in the manner and with apparatus usually employed by the oil chemists, but with standard glasses supplied by the Bureau.

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These tests were conducted by I. G. Priest and B. Judd, representing the Bureau of Standards, and Geraldine K. Walker, representing the A.O.C.S. They were very effectively assisted by a number of volunteers in behalf of the A.O.C.S. By having several persons take turns in conducting the tests, it was possible to test forty-six applicants in a formal systematic manner.

Just prior to the New Orleans Convention and in preparation for

it, a number of individuals at the Bureau were tested in regard to their ability to perceive differences in Lovibond red. These data will also be supplemented by other data obtained at Washington since the Convention.

The report upon these tests is now being prepared. (Priest, Judd, Walker).

6. *Reports to A.O.C.S. at New Orleans Convention*.

Oral reports on progress of the cooperative work by the Bureau and the A.O.C.S. were made to the Convention May 15th, by Mr. Priest and Miss Walker.

Routine Work Progress

7. *Progress on Routine Calibration of Red Glasses Submitted by A.O.C.S.*

Work on routine calibration has been delayed several weeks by reason of attention given to color sense tests and also by illness of the research associate in charge of it. For these reasons, this work was practically suspended during the latter three-quarters of May.

Twenty-nine glasses submitted April 14th have been calibrated and returned.

Twenty-four red glasses submitted May 3rd have been calibrated and returned.

Twenty-five red glasses were submitted May 14th.

Twenty-five red glasses were submitted May 31st.

One glass submitted May 3rd (in addition to those mentioned above) was found to bear same number as another glass previously reported (A.O.C.S. 342). This number has been effaced and this glass has been marked A.O.C.S. 500 as per instructions from Mr. Putland. (Walker).