

Report on Tintometer Standardization

Color Committee of American Oil Chemists' Society Recommends Adoption of Standard Instruments, Glasses and Tubes

By W. D. HUTCHINS, *Chairman*

YOUR Committee has considered the standardization of a tintometer including source of illumination, magnesia block, and color tubes. We had hoped to be able to recommend to you an instrument for adoption as a Standard giving the detailed specifications and measurements, but our plans did not materialize, or rather were not completed. We were unable to get some of the important suggestions actually tested due to unavoidable delay in getting trial instruments made.

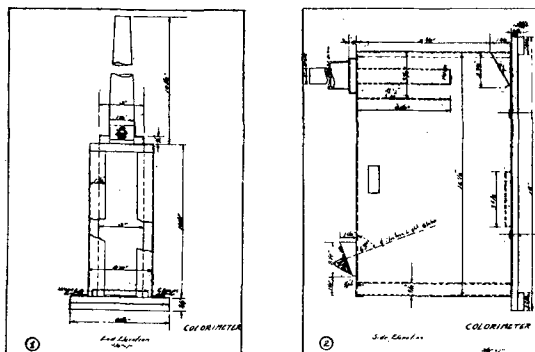
The type of eye-piece and the principle involved in it were considered thoroughly and the majority of the Committee felt that we should recommend the simple eye-piece in preference to the eye-piece making use of prisms. The position of the Committee might be best expressed by the following paragraph from one of Priest's communications:

"I believe there is but little advantage and considerable disadvantage in bringing the color of the oil and the color of the glasses into close juxtaposition in the field of view *unless due care is also taken to make measurements of relative brightness*. Since such measurements are never made and, so far as I know are not contemplated, the conclusion is that the simpler instrument is to be preferred. If brightness measurements were to be made, a more perfect condition of immediate juxtaposition would be requisite than is obtained in any 'tintometer' I have ever seen."

Recommendations

FEELING the urgent need of a standard tintometer and considering the many requests for such, the committee recommends that the Society adopt as a tentative standard the Enclosed Wesson Type Instrument illustrated by the attached drawings.

2. That the Standard Set of Lovibond Color Glasses be changed so as to include 50 yellow glass and 70 red glass for laboratories making analyses of corn and soya bean oils, and that



Drawings 1 & 2

the clause "Red Glasses to be standardized by the U. S. Bureau of Standards" be changed so as to read: "The Red Glasses to be standardized by the U. S. Bureau of Standards, but the actual color value does not have to be the exact numerical number shown on the glasses."

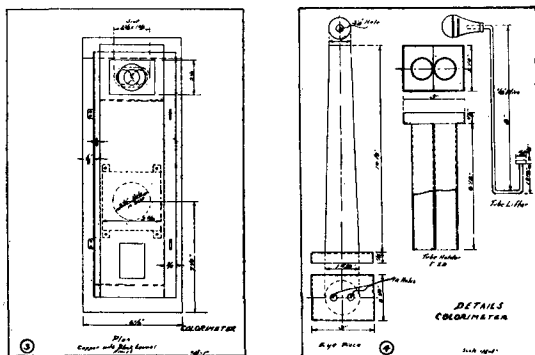
3. We recommend that the Society have a supply of the Standard Color tubes manufactured and furnish them to the members at cost.

Recommendation No. 1, referring to the tentative tintometer, does not meet with the unanimous approval of the Committee. The Rule covering determination of color has been rewritten so as to embody the recommendations made, and copy of the revised rule is attached to this report. We suggest that the incoming Committee continue the investigational work already begun on the illumination of the tintometer, and especially the question of whether a blue daylight filter in the eye-piece gives more constant and uniform light than the Mazda Daylight Lamp which is now official. We wish to thank Irwin G. Priest for his very kind assistance and advice.

Color

(a) Apparatus:

THE tintometer shall be a light-proof metal box with dull black interior, corresponding in detail to the measurements and specifications shown on Drawings, Nos. 1, 2, 3, 4, and 5.



Drawings 3 & 4

Light Bulb—The illumination of the tintometer shall be furnished by a 100-watt frosted Mazda Daylight Lamp located in the tintometer in accordance with angle shown in Drawing No. 2.

Magnesia Block—To be used as light reflector in the tintometer, shall be 1" x 2 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ " in size.

Lovibond Standard Color Glasses—Red and yellow, of suitable numbers to match the color of the oils to be examined. The minimum standard set shall consist of the following numbers of red and yellow glasses:

Red:	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
	1.0	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	
	7.6	8.0	9.0	10.0	11.0	12.0	16.0	and 20.0		
Yellow:	1.0	2.0	3.0	5.0	10.0	15.0	20.0	and 35.0		

Laboratories analyzing corn and soya bean oils shall have the additional glasses, 30 yellow and 70 red.

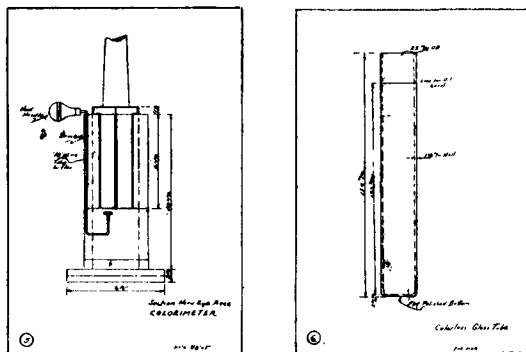
Red Glasses to be standardized by the U. S. Bureau of Standards, but the actual color value does not have to be the exact numerical number shown on the Glasses.

Color Tubes—Shall have a flat, smooth, polished bottom of clear colorless glass and of the following dimensions: length 154 mm over all, 19 mm inside diameter, and provided with a mark to indicate oil column of 133 mm (Drawing No. 6).

(b) **Determination:**

FILL a tube with the oil to be examined to a depth of 133 mm. Oil must be at a temperature of 20° to 24° C., and must be clear and transparent. Filter through good heavy grade, close texture, white filter paper at 20° C. to 24° C. if necessary to remove turbidity to permit matching the color, and in such cases note on your report that filtering was necessary. If, however, the oil or fat under examination is not completely liquid at 20° C., heat until completely liquefied, and read the color at a temperature not more than 10° C. above that at which it becomes completely liquefied. Place the tube containing the oil in the tintometer

and place alongside of it such yellow and red glasses as are necessary for making the comparison desired, observing the colors of the oil and the glasses through the eye-piece. When only two color glasses are used a colorless glass must also be used so that three glasses will be used in all cases. In matching the color, use only one yellow glass, not more than two red glasses up to and including 13.0 red, and not more than three red glasses above 13.0 red. Report the numbers of the yellow and red glasses which match the color of the oil; or if a standard combination is specified (as prime for example) report whether the oil is prime or off as compared with the standard.



Drawings 5 & 6

Sumatran Palm Oil—1930

The total area planted to palm oil trees in the Dutch East Indies during 1930 was 144,-224 acres. Out of this total 63,650 acres were producing. The total production of palm oil for 1930 was 120,822,574 pounds, or approximately 1,900 pounds per acre. During 1930 the Dutch areas planted in palm oil more than doubled, Dutch areas in production increased by 135 per cent, and Dutch palm oil production increased from 19,107,191 pounds in 1929 to 65,473,833 pounds in 1930. This enormous expansion in new areas was caused to a large extent by the difficulties into which the rubber industry has come, and by the faith of the planters that palm oil is destined to vie with rubber for the leading place in Sumatra's industries. The above figures do not take into consideration the largest producer of all, which refuses to divulge statistical information regarding its palm oil activities.

The Franco Belgian organizations showed increases in 1930 over 1929 of 6,051 acres in planting, 1,910 acres in production, and of 14,738,754 kilograms in yield. Small gains were also made by the German and Japanese producers, while the British palm oil industry in North Sumatra declined in number of acres planted while increasing in areas in production.