SOAP COLOR TEST OF SULPHUR OLIVE OIL

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Sulphur olive oil, commonly called olive oil foots, is the residuum oil extracted from the olive pulp by carbon bisulphide, after the removal of edible and commercial oil by pressure. The oil is used for textile and soap manufacture, and the commercial value is determined by its moisture and insoluble contents, and by the color of the soap produced from it by saponifying it with caustic soda.

The New York Produce Exchange has the following rule on this oil; 'To grade prime green, the foots must be fair average quality of the season's production, and must saponify with 20° Beaume caustic soda and not turn brown, when tested as above for green oil." The extract of the rule on olive oil applying to this reads as follows: "When saponified with a solution of caustic soda in the proportion of 8 c.c. to 10 grams of the oil, hot."

As practiced in this laboratory, 10 grams of the oil in a three or four inch evaporating dish are heated on the steam bath, and stirred with 8 cc of the required caustic soda thoroughly. After standing five or ten minutes on the bath, the soap is again thoroughly stirred. After about an hour total time, the soap is examined and should not be brown. Actually, many of the samples are a brilliant dark green especially in the beginning of the season, in February or March, but the colors vary from this through various shades of olive green to brown. According to the rule, any soap that is not brown grades "prime green" but no grade is established for the samples which are better than the others, such as a "choice" green. Due to that fact, many lots are sold on sample, as certain soap-makers seem to require a better green color than others.

The question of this soap color has been discussed for some time, and lately this laboratory resolved to study this question more thoroughly. No really definite results have been obtained but a method has been developed whereby the color has been read in the Lovibond tintomter with considerable success, and seems to give promise of good results. The method and procedure are being given here for further discussion and cooperative work by any who may be interested.

After saponifying the oil as above, the soap was allowed to stand on the bath for about two hours total time, and then after cooling dissolved in 250 c.c. of alcohol, and a 50 c.c. aliquot of this made up to 200 c.c., giving a soap solution containing 1 gram of oil in 100 c.c. of alcohol. After filtering, the color of this solution was read in the usual manner, using 5¼ inch column of solution. In reading the color, a one unit blue glass was used on all readings, and the red and yellow varied.

We have grouped these readings so that the best ones are in the

first group, and might be used for a choice grade, and the rest are divided between the prime but not choice samples, and the off samples.

RESULTS OF TESTS FOR COLOR

Soap Color (NYPE test)	Grade (NYPE)	Lovibond reading Blue	Yellow	Red
Excellent Green	Prime Green	1.0	6.0	0.5
" "	" "	1.0	6.0	0.7
" "	" "	1.0	8.0	0.5
" "	" "	1.0	5.5	0.1
" "	" "	1.0	6.0	0.1
Good "	" "	1.0	5.5	1.0
" "	" "	1.0	7.0	1.0
" "	" "	1.0	8.0	1.7
" "	" "	1.0	8.0	1.0
" "	" "	1.0	5.5	0.5
" "	" "	1.0	3.5	0.3
Poor "	" "	1.0	9.0	1.4
Brown "	Not " "	1.0	11.0	2.0
"	" " "	1.0	12.0	2.1
"	" " "	1.0	39.0	7.7
"	" " "	1.0	35.0	3.6

This method seems to give promise that it may develop into a method which may be better than the other, but we would like to see results by others. It would seem that all colors under 1.0 red might be graded "choice" and all under 2.0 prime; but of course further results are necessary before any definite conclusions can be drawn.

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