Results in Regrading Lovibond Red Glasses

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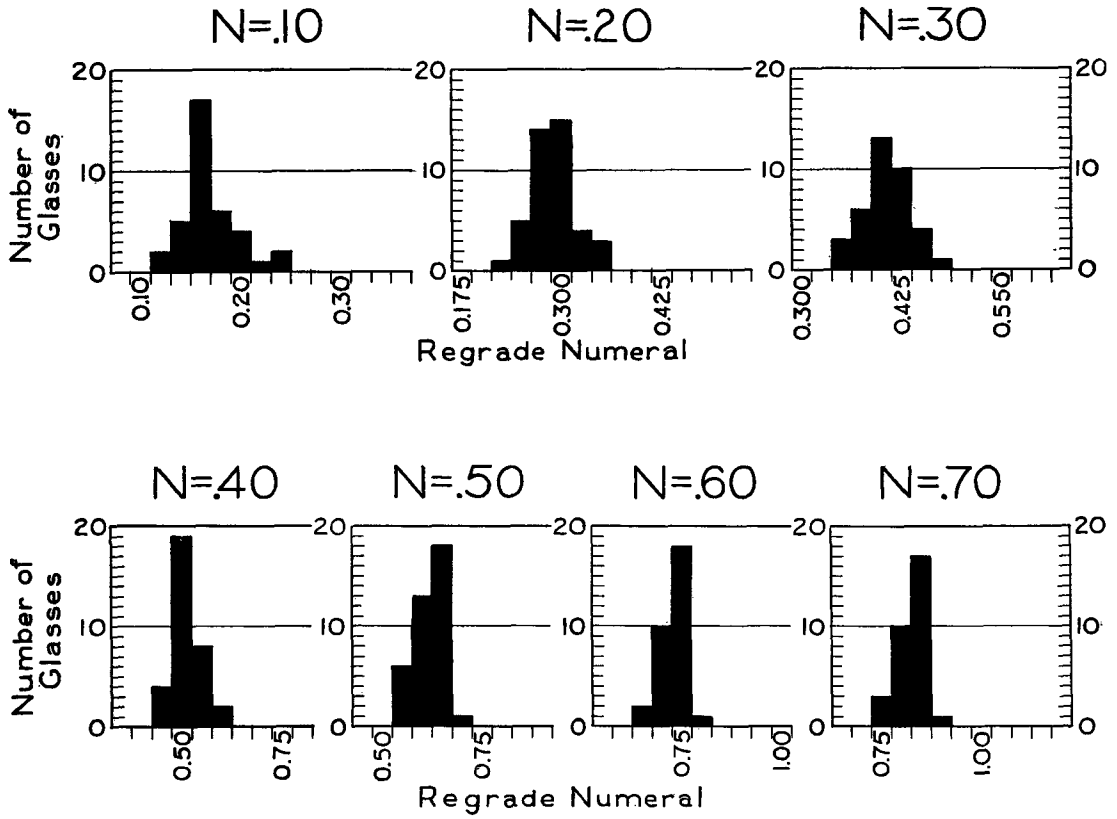
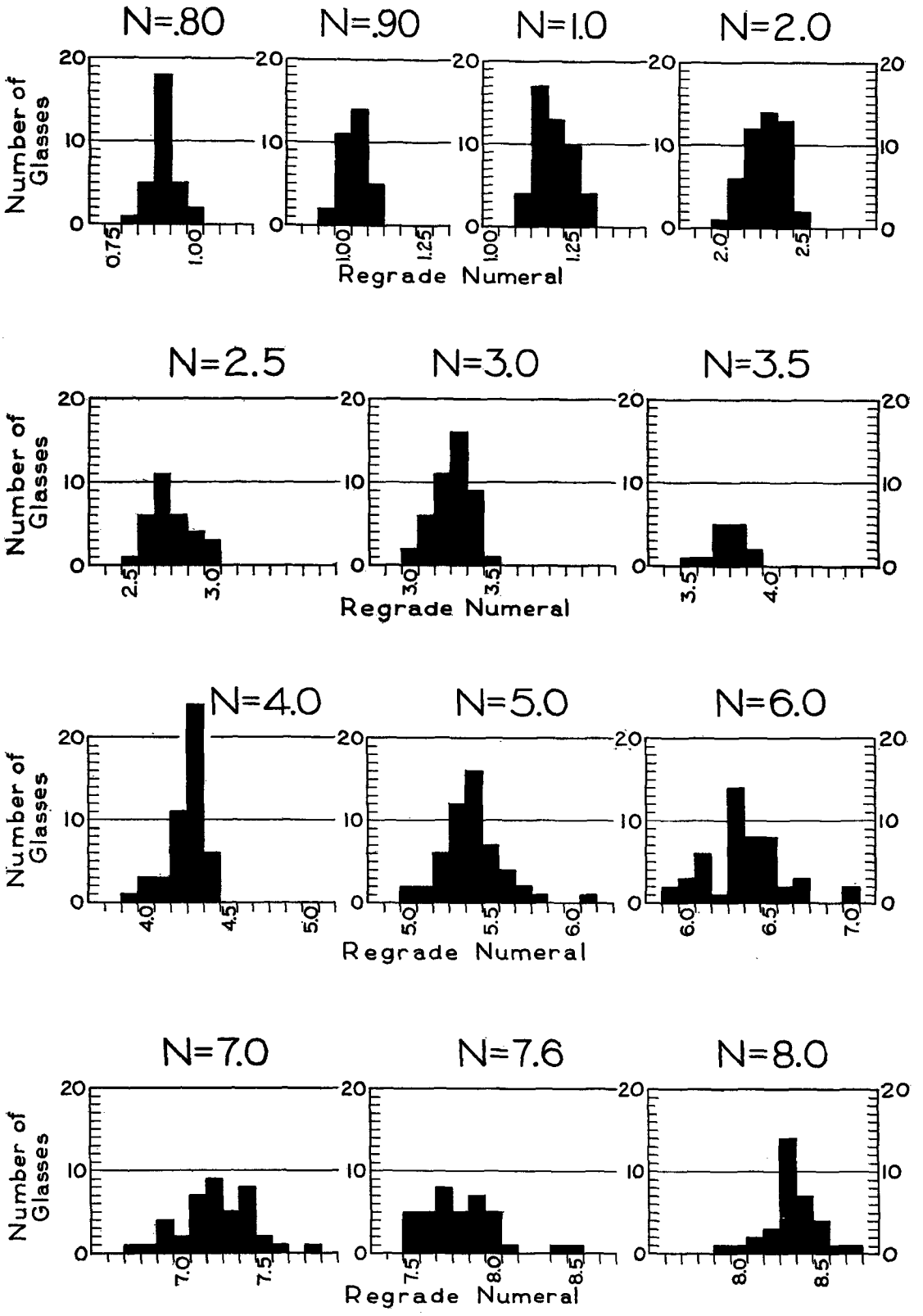
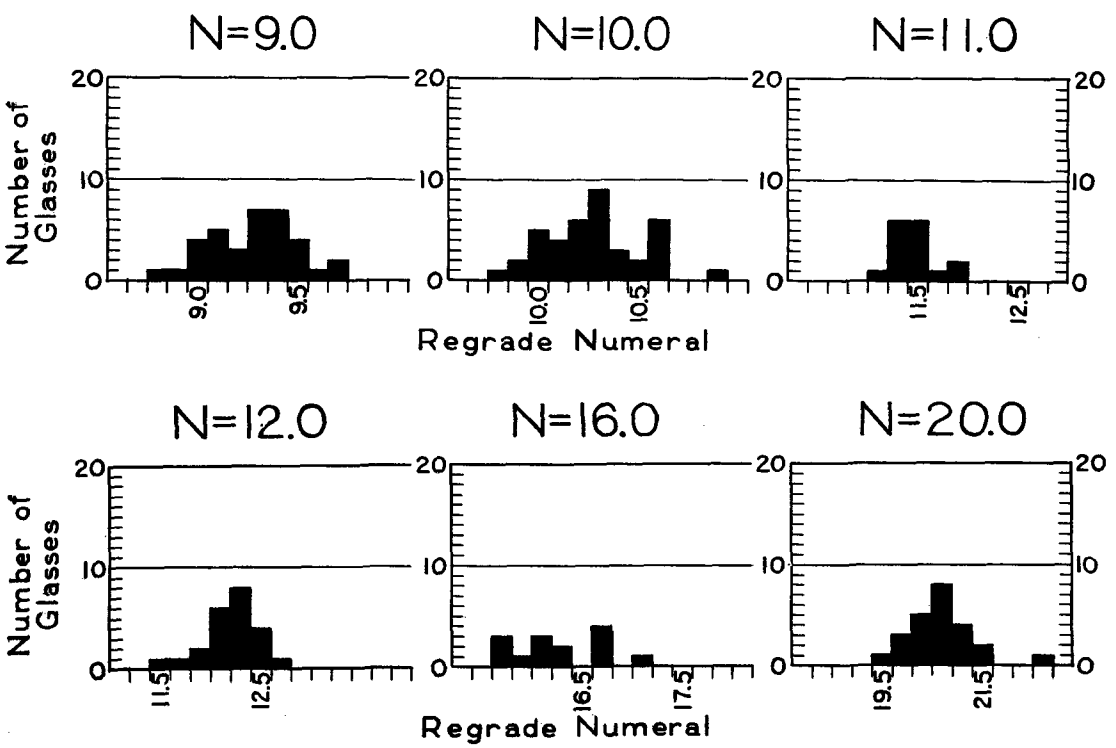
HEREWITH are given eight diagrams which summarize in a rather striking way the results obtained by Miss Walker in regrading 1000 red glasses. These figures are intended to show the spread of regrade values (the values we have certified) for glasses having a given grade (N) as submitted. That is, they show the actual discrepancies among glasses which had nominally the same grade when submitted to us. Each of the small diagrams indicates the distribution of glasses according to regrade numeral for a given nominal grade, N, as submitted. These diagrams have been made to illustrate a report which Miss Walker is now preparing for publication. I believe they will be found self-explanatory, and will be of some interest to the American Oil Chemists Society.

We have designed and constructed an instrument intended to make the use of Lovibond glasses more convenient and reliable in color-grading oils. I would be glad to have any interested members of the Society call here and examine this instrument at their convenience.




N=.80
N=.90
N=1.0
N=2.0
N=2.5
N=3.0
N=3.5
N=4.0
N=5.0
N=6.0
N=7.0
N=7.6
N=8.0
Number of Glasses
Regrade Numeral
0
10
20
0.75
1.00
1.25
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5



A Test for Neutral Oil

(*From Page 24*)

minutes. Then it was slowly poured into the Nessler tube of the emulsometer until the yellow color of the light turned red, and was finally extinguished. The extinction point should be found before a total time of 4½ minutes has elapsed from the time of the first addition of the ammonium hydroxide.

The above experiment was repeated, using different quantities of oil. The following data was secured.

Drops mineral oil	Drops coconut oil	W't. oil gms.	% oil	W't. acids gms.	W't. acids taken gms.	Nessler reading
4	0	0	0	5.376	5.376	17.0
4	1	0.0124	0.076	16.128	5.376	14.75
4	1	0.0124	0.115	10.752	5.376	13.25
4	1	0.0124	0.23	5.376	5.376	10.40
4	2	0.0248	0.46	5.376	5.376	8.0
4	3	0.0372	0.69	5.376	5.376	5.80

Plotting Nessler readings as ordinates, and percent neutral oil as abscissae, the curve of figure 2 follows. This curve shows that as the percent of neutral coconut oil in the acids increases, the turbidity of the emulsion of oil in water increases and offers more resistance to the passage of the red component of the Tyndall beam.

In order to determine the percent of neutral oil in coconut oil soap, or fatty acids, it is only necessary to follow the test as described above, omitting the addition of the coconut oil. Of course, if the material to be tested is soap, it must first be acidified by any suitable method. After securing the acids, in any case, they should be subjected to a treatment with sodium bisulfite. If it is not desired to do this, and the unsaponifiable matter contained in the oil and acids is fairly constant in amount, the emulsometer curve can be re-made for any type of oil, by experiments similar to those described. From the Nessler reading, by reference to the curve, the percent of neutral oil present can be read directly.

(1) J. I. E. C., 18, 1353 (1926). Thomssen: "Soap Making Manual," P. 148.

(2) Lewkowitsch: "Chem. Tech. and Anal. of Oils, Fats, and Waxes, 1, 112 (1921).

(3) Ibid.

Re-esterification and condensation, as well as polymerization, are factors in the coagulation of chinawood oil. The various colloidal phases corresponding to these factors have different physical characteristics and solubilities. Reagents which are added to hasten or prevent coagulation of wood oil act by depolymerizing, by esterifying or by the formation of mixed glycerides. *Chem. Unschau Fette, Oele, Wachse Harze* 36; 35-8 (1929).