Any number of intermediate colored, quinoid forms could be written for the other rosin acids. All of these, incidentally, should be highly fluorescent.

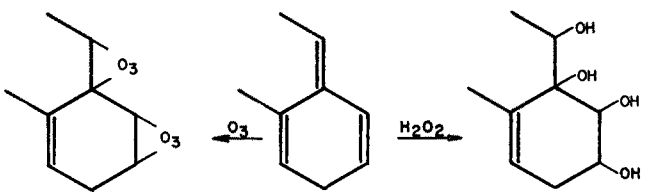
The action of ozone on a double bond in general may be represented in the following manner:

$$-CH=CH- + O_3 \longrightarrow -CH(-O-O-)CH-$$

Hydrogen peroxide likewise adds to a double bond with ultimate formation of glycols after hydrolysis of intermediate oxide compounds (4).

$$-CH=CH- + H_2O_2 \longrightarrow -CH(OH)-CH(OH)-$$

The double bond is replaced by an ozonide in the former case and by a glycol in the latter case. Thus a quinoid colored structure as represented by formula (XIV) should give a colorless ozonide (XV) or glycol (XVI).



XV XIV XVI

This in essence is a possible explanation for the discolorization of oxidized polyethenoxy tallates with ozone or hydrogen peroxide. From Figure 2 it appears that hydrogen peroxide is limited in the number of quinoid double bonds which it can sever while ozone is more effective. Actually, only a trace of quinoid structures need be prseent to give highly colored tallates, and the ozone or peroxide would add to the double bonds of the normal esters (IX, X) as well as to the quinoid structures. It should be noted that a decolorized product actually contains more oxygen and probably possesses greater water solubility than the parent tallate.

Summary

A method for decolorizing tall oil-ethylene oxide condensates (polyethenoxy tallates) by use of ozone or hydrogen peroxide is presented. The chemistry of the possible reactions involving quinoid structures is discussed.

REFERENCES

1. Stoltz, E. M., Ballun, A. T., Ferlin, H. J., and Karabinos, J. V., J. Am. Oil Chem. Soc., *30*, 271 (1953).
2. Ball, F. J., Vardell, W. G., J. Am. Oil Chem. Soc., *28*, 137 (1951).
3. Ballun, A. T., Schumacher, J. N., Kapella, G. E., and Karabinos, J. V., J. Am. Oil Chem. Soc., *31*, 20 (1954).
4. Weygand, C., "Organic Preparations," Interscience Publishers Inc., New York, 1945, p. 126.

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Report of Glycerine Analysis Committee–September 1953

THE collaborative program for analysis of glycerine, which included 33 laboratories in this country and abroad, was continued this year in conjunction with the Special Committee on Glycerine. The average result for the analyses of the collaborative samples and the precision of the analyses as expressed by the standard deviation are given in the following table.

In view of the interest in the sodium periodate method in this country and abroad as a replacement for the acetin method, we plan to conduct during the coming year some collaborative tests by the official A.O.C.S. Method Ea 6-51 and modifications that have been suggested by collaborators abroad. The details for the 1954 program will be decided on at the fall meeting of the Glycerine Analysis Committee.

Some modifications of the total residue method directed toward simplifying and shortening procedure are being studied. The tests made this year look promising and will be continued.

J. T. R. ANDREWS H. MATHEWS
H. C. BENNETT W. A. PETERSON
E. L. BOLEY J. B. SEGUR
W. C. CLARK ARNOLD TROY
W. D. POHLE, chairman

Summary of Averages and Standard Deviations for Collaborative Results for 1952-1953

	Average	Standard dev.	2 Sigma units
C. P. Glycerine			
Glycerol Ea 4-38 (Acetin)	94.39	0.43	93.53 -95.25
Ea 6-51 (Na Period.)	95.10	0.30	94.50 -95.70
Ea 7-50 (Sp. Gr.)	95.04	0.13	94.78 -95.30
Soap Lye Crude No. 2			
Ash	9.18	0.31	8.56 - 9.80
Total alkalinity	0.85	0.07	0.71 - 0.99
Free alkalinity	0.030	0.014	0.002- 0.058
Combined alkalinity	0.75	0.05	0.65 - 0.85
Carbonate	0.09	0.04	0.01 - 0.17
Salt	7.14	0.08	6.98 - 7.30
Total residue	10.71	0.61	9.49 -11.93
Organic residue	1.66	0.57	0.52 - 2.80
Glycerol Ea 4-38	80.41	0.58	79.25 -81.57
Ea 6-51	80.49	0.43	79.63 -81.35
Saponification Crude No. 3			
Ash	3.89	0.20	3.49 - 4.29
Free acidity	0.06	0.014	0.03 - 0.09
Total alkalinity	0.24	0.09	0.06 - 0.42
Alkalinity equiv	0.42	0.15	0.12 - 0.72
Salt	0.12	0.13	- 0.38
Total residue	15.46	0.83	13.80 -17.12
Organic residue	11.68	1.10	9.48 -13.88
Glycerol Ea 4-38	79.62	1.32	76.98 -82.26
Ea 6-51	80.28	0.37	79.54 -81.02