

Fig. 1. Relative viscosity vs temperature.

on the temperature experiments as the temperature of the solution may have changed slightly during the measurement of the viscosity. Also the temperature of the instrument may not have been in equilibrium with that of the solution. A plot of $\log \eta$, or in this case relative viscosity, vs $1/T$, where T is temperature in degrees Kelvin, should yield a straight line.³ This is true within the limits of experimental error as seen in Fig. 1. The slope, however, is not great as is a characteristic of XG. Figure 2 shows the change of viscosity with concentration. η is again relative viscosity in centipoises

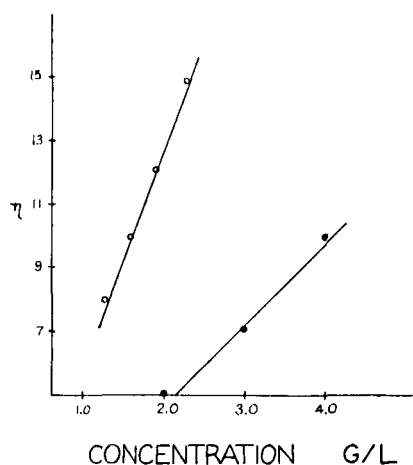


Fig. 2. Relative viscosity vs concentration; ○ Kelzan and ● Gantrez AN-4651.

and concentration is in grams/liter. The XG, particularly, is sensitive to concentration. A much lesser quantity of XG is needed to obtain a given viscosity than of the p-MVE/MA.

The viscosity data should give laboratories the necessary information to determine how much Kelzan to put in a trial mix of soundtrack developer.

Summary

This laboratory has found the xanthan gum, Kelzan, to be far superior as thickener in Eastman color soundtrack developer, mainly because it dissolves in water. Viscosity experiments were performed to determine how much to use under given laboratory circumstances.

Eastman Kodak Research Laboratories in Rochester have found Kelzan to be an acceptable thickener in the Eastman color soundtrack developer. The sensitivity of the solution using Kelzan to concentration and temperature is greater than Gantrez⁴ but this was found to cause no problems. This laboratory has used the Kelzan-thickened track developer for almost a year without problems.

References

1. General Aniline and Film Corp., "Gantrez AN," Tech. Bull. 7543-017, 1965.
2. Kelco Co., "Kelzan," Tech. Bull. 1 #15, 1969.
3. Samuel Glasstone and David Lewis, *Elements of Physical Chemistry*, D. Van Nostrand, Princeton, N.J., 1960.
4. Franklin Reinking, Eastman Kodak Co., 6300 Cedar Springs Road, Dallas, TX 75235, personal communications.

standards and recommended practices

International Standardization

The International Organization for Standardization (ISO), whose activities in the field of cinematography were described in the November 1967 *Journal* (pp. 1113-1115), approved in January 1971 Recommendations R 1200 and R 1753.

ISO Recommendation R 1200-1971, Direction of Winding of Motion-Picture Film Perforated Along One Edge, specifies a method of designating the direction of winding of motion-picture raw stock and parallels American National Standard PH22.75-1969.

ISO Recommendation R 1753-1971, Location and Dimensions of Recording Heads for Six Track Magnetic Sound Records on 35mm Film, specifies a system which is used in the United States, although it is not documented by a national standard.

Attention is directed to the fact that only the technical content is published here. Copies of the complete recommendations are available from the American National Standards Institute, 1430 Broadway, New York, NY 10018. — A.E.A.