Proceedings of the Iowa Academy of Science

Volume 46 | Annual Issue Article 84

1939

The Orientation of Certain Liquid Crystals and the Flow of Heat

Leon M. Reynolds
State University of Iowa

G. W. Stewart
State University of Iowa

STUDIES OF DIELECTRIC LIQUID MIXTURES

CLEO C. BYERS AND ARTHUR F. VETTER

An experimental study of the continuous variation of the low-frequency dielectric constant and the optical refractive index of binary mixtures of certain liquid dielectrics with varying concentration. Special condenser and refractometer methods are used, respectively, by the two authors.

DEPARTMENT OF PHYSICS,
COE COLLEGE,
CEDAR RAPIDS, IOWA.

THE ORIENTATION OF CERTAIN LIQUID CRYSTALS AND THE FLOW OF HEAT

LEON M. REYNOLDS AND G. W. STEWART

The flow of heat without convection in the liquid crystal para-azoxyanisol seems definitely to orient these liquid crystals with their long axes perpendicular to the direction of the flow. This phenomenon, first observed by G. W. Stewart, has been independently verified by Donald O. Holland and Leon M. Reynolds. The orientation is readily disturbed by convection and by a mechanical disturbance such as a rotation of the sample. The significance of this phenomenon is at present uncertain. The difficulty rests in an adequate theoretical treatment of such a non-homogeneous medium. Tests should be made of other liquid crystals.

DEPARTMENT OF PHYSICS,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

THE SIGNIFICANCE OF THE LIQUID STRUCTURE OF WATER

G. W. STEWART

A discussion of what is at present known of the liquid structure of water and the dependence of behavior upon that structure.

DEPARTMENT OF PHYSICS,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.