INSTITUTE OF GAS TECHNOLOGY

RESEARCH BULLETIN

26

PHYSICAL-CHEMICAL PROPERTIES OF ETHANE-NITROGEN MIXTURES

A PAR PLAN
ACTIVITY OF THE
AMERICAN GAS ASSOCIATION

PREFACE

This Bulletin, the 26th in a series of publications on research conducted in the libraries and laboratories of the Institute of Gas Technology, presents the results of one phase of the determination of the physical and thermodynamic properties of natural gas components and their mixtures, data which are required for the engineering design of plants to separate the pure components of natural gas.

Investigation of the physical and thermodynamic properties of natural gas components and their mixtures was initiated in November, 1947, as a part of the Institute's Basic Research Program. The initial literature survey, and the design, construction and operation of the experimental units and their modifications, were accomplished with Institute funds.

In January, 1950, the Technical and Research Committee contributed $5,000, under the PAR (Promotion-Advertising-Research) Plan of the American Gas Association, as a grant-in-aid for "A Study of the Physical and Physical-Chemical Properties of the Methane-Nitrogen System." In January, 1951, the Committee assumed complete financial responsibility for the "Study of the Physical-Chemical Properties of the Methane-Ethane System," Project NB-1.* With the consolidation of departments within the American Gas Association, financial sponsorship of the program, including its extension to "Study of the Physical-Chemical Properties of the Ethane-Nitrogen System," Project NB-5, was assumed by the Pipeline Research Committee in 1953.†

The guidance and encouragement of the Supervising Committee composed of D. T. MacRoberts and M. E. Benesh, and of the Technical and Research and Pipeline Research Committees, are gratefully acknowledged. The authors wish to thank Director E. S. Pettyjohn for assistance in the design, construction and manipulation of the equipment used. John R. Hasenberg assisted in the experimental work. The editing of this Bulletin is the work of A. E. S. Neumann; the illustrations, of S. Bruno, E. Hviid, and D. Sternbach.

Chicago, Illinois
July, 1955

E. S. PETTYJOHN, *Director*
Institute of Gas Technology

* PHYSICAL-CHEMICAL PROPERTIES OF METHANE-NITROGEN MIXTURES, by O. T. Bloomer and J. D. Parent. Institute of Gas Technology Research Bulletin No. 17, 1952.

THERMODYNAMIC PROPERTIES OF NITROGEN, by O. T. Bloomer and K. N. Rao. Institute of Gas Technology Research Bulletin No. 18, 1952.

Supplement to Bulletin No. 18. "Mollier Chart for Nitrogen" and "Compressibility Chart for Nitrogen," reproduced full scale (grid 10 x 10 to the inch) on heavy paper, 22″ x 34″.

† THERMODYNAMIC PROPERTIES OF METHANE-NITROGEN MIXTURES, by O. T. Bloomer, B. E. Eakin, R. T. Ellington and D. C. Gami. Institute of Gas Technology Research Bulletin No. 21, 1955.

Supplement to Bulletin No. 21. "Mollier Chart for Methane" and "Temperature-Entropy Chart for Methane," reproduced full scale (grid 10 x 10 to the inch and 10 x 10 to 0.75 in. respectively) on heavy paper, 22″ x 34″.

PHYSICAL-CHEMICAL PROPERTIES OF METHANE-ETHANE MIXTURES, by O. T. Bloomer, D. C. Gami and J. D. Parent. Institute of Gas Technology Research Bulletin No. 22, 1953.

LIBRARY OF CONGRESS CATALOG CARD NUMBER: 55-11229