of oxidation of ethylene in consecutively placed catalyst layers. Ideal mixing and a method of varying ideal displacement from the static layers were employed. It was shown that for two parallel reactions, in which the activation energy of side-reactions is greater than that of the useful one, the optimum temperature must increase with progressive increase in conversion. Calculated quantities of catalyst essential to achieve various yields of ethylene are also presented.

Interferometric Method for Study of Reaction Kinetics

By A. J. Rozovskii

In a study of kinetics of gaseous phase reactions, usefulness of the interferometer was examined to determine the extent of conversion in continuous-flow and continuous recycle-flow systems.

To determine the degree of conversion of a multicomponent mixture in terms of the concentration values of its component "k," when this is present in either stoichiometric or non-stoichiometric amounts, it is sufficient to know the following:

(1) Concentration of component "k" in the charge mixture;

(2) Equation for the reaction;

(3) Instrument readings for the gaseous mixtures entering, flowing, and leaving a system.

Recycle-Flow Reactors for Measuring Catalytic Activity

By G. P. Korneychook and Yu. I. Pyatneetzkii

Two types of contact recycle-flow reactors are described for determination of catalytic activity as well as for investigation of the kinetics of heterogeneous catalytic processes within the conditions for which each recycle-flow system is designed. The contact reactor of the first type has a plunger-type circulation pump, operated by an electromagnetic coil. The reactor of the second design is equipped with a screw-type circulation pump which is activated by a Warren motor or by an electric motor via a drive and a packing gland. The use of a closed type nonsynchronous electric motor is also possible by equipping it with a steel rotor and by insulating the inner metal reactor walls with a non-conductive lining.