EVALUATION OF THE ACTIVATION ENERGY FOR THE OLGOMERIZATION OF ETHYLENE USING A MICROREACTOR IN A DTA

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The theoretical considerations and the experimental data to calculate the activation energy of the ethylene oligomerization using a microreactor in a differential thermal analyzer are presented.

Experimental

The experiments were carried on in a Differential Thermal Analyzer, Fig. 1, with the following characteristics:

![Fig. 1. Block scheme of the differential thermal analyzer](image)

Equipment: DTA Du Pont, Model 900 S.N. 3211

- Sensitivity: 0.4–0.004 mV/in
- Operation temperature: 20–1500 °C
- Linear heating rate: 0.5–20 °C/min
- Thermocouples, references and sample: Pt, Pt-13% Rh

Sample preparation

The vials Fig. 2, with or without catalyst A or B as shown in Fig. 3, are outgassed by means of a vacuum system at pressures of 10^{-2} torr, Fig. 3. After the system is evacuated for 3 or 4 hours, ethylene is introduced and pressure is monitored with a manometer (F). With stopcock (E) closed, one of the vials is
Fig. 2. Differential thermal analyzer

Fig. 3. Sample preparing installation