

## Measurement of the reaction rate proceeding with gas absorption or gas evolution

© Lyutsia R. Yakupova,\* Sergey G. Proskurjakov, Ravis N. Zaripov,  
Shamil R. Rameev, and Rustam L. Safiullin\*

*Institute of Organic Chemistry Ufa Scientific Center Russian Academy of Science. Prospekt Octyabrya, 71.  
Ufa. 450054. Bashkortostan Republic. Russia. Phone/fax: +7 (347) 235-60-66. E-mail: jkupova@anrb.ru*

\*Supervising author; †Corresponding author

**Keywords:** *measurement of the rate of gas absorption or evolution, radical-chain oxidation, inhibition rate constants.*

### Abstract

In this paper, the description of installation for studying the kinetics of the processes going with gas absorption or evolution has been presented. Pressure change is measured by the high-sensitivity pressure detector on the basis of the silicon membrane element. The installation allows to measure the reaction rate from  $10^{-8}$  to  $10^{-3}$  mol·l<sup>-1</sup>·c<sup>-1</sup>. The detector carries out automatic registration of pressure change in system and is supplied by computer maintenance for treatment of experimental results. Approbation of installation work has been performed: the oxidizability parameter 1,4-dioxane and the rate inhibition constant for ionol have been measured. It is shown that the results agree satisfactorily with the data received earlier.