

Kinetic Study of the Reaction between Ethanol and Chloroacetylchloride in Chloroform Using FT-IR Spectroscopy.

Garcia, M. V.; Tiemblo, P. J. *Chem. Educ.* **1992**, *69*, 841-843.

IR-Topic: FT-IR, Lambert-Beer's equation

Chem Topic: Reaction kinetics



Kinetics is followed via quantitative FT-IR-spectroscopy. The C=O stretch of ClCH₂-COCl is used to follow the reaction. Special feature: The C=O stretch has two peaks in the IR because of the presence of the *trans* and *gauche* isomers (with respect to the C-C bond). The sum of these bands is used to measure the concentration change of the starting material. Note that the C=O of the product, the ester, does not interfere with this measurement.

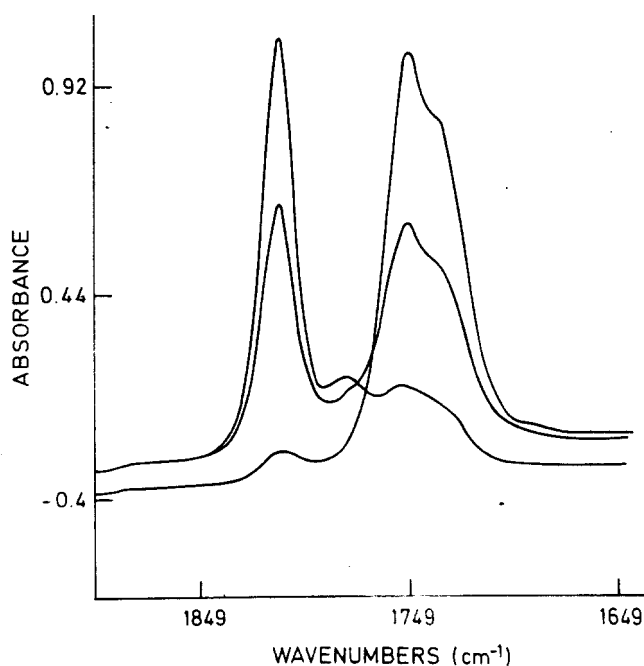


Figure 1. Time evolution of the reaction between ethanol (0.255 M) and chloroacetyl chloride (0.069 M).

Using Lambert-Beer's law, the kinetics can be worked out.