

Book review

Pharmaceutical Isothermal Calorimetry, S. Gaisford, M.A.A. O'Neill. Informa, New York. ISBN 0-849-3155-2

Since all chemical and physical reactions are accompanied by a change in heat content or enthalpy, microcalorimetry is applicable to the investigation of almost all reactions. Isothermal calorimetry has the advantage of monitoring such chemical and physical reactions successively, yielding heat flow (power, dq/dt in W) versus time (t , in s) plots. Due to the simplicity of the principle and the determination procedure, the technique has spread throughout the major pharmaceutical companies. However it is difficult to interpret and analyse the obtained heat flow versus time data, therefore many researchers have trouble determining the kinetic and thermodynamic parameters of the studied reactions.

The book *Pharmaceutical Isothermal Calorimetry* written by Dr Simon Gaisford and Dr Michael O'Neill is a general instruction handbook which features instructions how to interpret and analyse the heat flow versus time data. Suitable calorimetric forms of equations are developed by incorporating calorimetric equations into kinetic equations, and the constants of these

are then determined by a process of iteration using a suitable graphics fitting program. Direct calculation also allows the direct determination of reaction parameters without the need of iteration. The book describes the principles of calorimetry, good experimental practice, as well as providing many examples of pharmaceutical sample determinations. The examples include studies on polymorphs, the amorphous state and compatibility studies for active pharmaceutical ingredients and formulated products. I highly recommend this book to not only the researchers who are intending to study isothermal calorimetry, but also those who are actively involved in the front lines of the field.

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