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Preface

A look back into history reveals that some nice calorimeters already existed at the very beginning of technological development, such as that described by Laplace and Lavoisier in 1780. However, it was not till the end of the 19th century or the very beginning of the 20th century that calorimetry began to undergo major change providing a wide number of different forms of equipment.

During the early years of the 20th century, three main types of calorimeters were developed: the heat bomb, with the first model described by Berthelot (1881) for the determination of heats of combustion; calorimeters themselves were essentially isothermal, but often isoperibolic, based on the idea of Lavoisier and Laplace, for the determination of heats of reaction, such as those designed from Thomsen, Berthelot or White (1928); the adiabatic calorimeter of Richards (1905) or MacInnes and Braham (1917) constituted the third type described in the general literature on the subject.

This very brief, and far from exhaustive mention of the beginnings of calorimetry has the only aim of observing that adiabatic calorimetry was born at almost the same time as or even a little before the other usual calorimetric techniques. It is widely used for the determination of heats of combustion, and in industry for the acquisition of essential data required to safeguard chemical systems from runaway reactions or unsafe conditions.

As concerns the papers collected on this occasion, one can immediately notice the power and flexibility of the technique. In fact, with adiabatic calorimetry it is not only possible to acquire valuable data, such as the normal heats of reaction, or increasing temperature and pressure rates, among others, for the design of safe processes. It is also possible, in combination with analytical chemical techniques, to obtain valuable knowledge relating to the chemical behaviour of systems under specific conditions. In addition, it should be noted that a wide range of chemocal processes may be studied: not only homogeneous processes, but also heterogeneous systems or polymerizations.

In spite of the efforts aimed at collaboration in this field, perhaps the excessive rigour of the users of this technique in evaluating the innovative value of their works has permitted only a very limited number of manuscripts. I take advantage of this opportunity to express my thanks to the authors of these six articles, who are clearly dedicated to adiabatic calorimetry. My thanks are also due to the referees, for reading and criticizing the papers so constructively. Most of their comments have without any doubt increased the quality of the final articles.

Likewise, I again take advantage of this space to encourage all users of the technique to publish their results. I have the conviction that they will be of great value for the development of new and safe processes and will surely contribute to further elevating the quality of the results and of the instruments.

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