

LETTER TO THE EDITOR

Dear Sir:

The paper of Wunderlich and Bopp [1] provides a useful study of the precision of DTA measurements in a single laboratory on a variety of certified or potential standard substances. It is helpful, however, to re-state certain limitations to the generalization of such work, which were presented in 1971 [2].

1. The materials studied, other than the NBS-ICTA Standards, utilize the melting point as the transition on which temperature standardization is based. While many modern instruments can accommodate liquid melts, it must be recognized that many instruments do not have this capability. For any material to be a true international standard, it must be usable in *all* types of DTA equipment, not only those which can contain liquid melts.

2. The precision achievable by one laboratory is frequently much greater than that achievable by a group of laboratories. This was confirmed in the Second International Test Programme conducted by ICTA [2]. It is not surprising that the *precision* (not *accuracy!*) of $\pm 0.5^\circ\text{C}$ reported by Wunderlich and Bopp [1] is much better than the $\pm 6-7^\circ\text{C}$ reported from the overall ICTA test programme. However, these test results represent the precision which may be expected over a range of modern instruments used by qualified thermal analysts and demonstrate the need for standard substances to which all laboratories can refer.

3. Organic temperature standards are not universally applicable in DTA, although these materials may be suitable in the semi-closed sample environment of the capillary tube. However, when used in a well-exposed sample holder, such as the flat pan used in many modern instruments, organic materials may readily sublime prior to the melting point, and little or no sample may remain at the temperature of the melting point depending upon the heating rate.

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1. B. WUNDERLICH and R. C. BOPP, *J. Thermal Anal.*, 6 (1973) 335.
2. H. G. McADIE, *Thermal Analysis 1971*, H. G. Wiedemann, editor, Vol. 1 pp. 591-608 (Birkhäuser Verlag, 1972).