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Addendum

Addendum to "Novel features in solid phase transition behavior of TlI [E.A. Secco, Thermochim. Acta 342 (1999) 161]"

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A report by Samara et al. on the transformation of yellow β-TlI, orthorhombic structure (*Cmcm* space group), to red α-TlI, cubic CsCl-type structure (*Pm*3*m* space group) was missed in our literature search [1]. This report contains the heat of transition ΔH_t, and the transition temperature of TlI, T_t, on a powdered sample obtained from a single crystal of TlI.

The transition temperature was determined at 1 bar to be 170°C. The quantitative value for the heat of transition at atmospheric pressure was obtained by comparing the peak areas of the DTA signals of the sample with the literature values for the two standard transitions in $AgNO_3$, viz., the solid–solid transition and the solid–liquid (fusion) transition. From these two standard values the ΔH_t of TlI was calculated to be 1120 and 1226 J/mol, respectively, giving an average value ΔH_t=1173 J/mol. This ΔH_t value is in excellent agreement with our ΔH_t=1180±50 J/mol cited in the above reference.

The existing literature data on the solid phase transition of TlI from different sources are collected in Table 1. The data suggest an involvement of two factors each independently affecting the transition temperature T and the transition enthalpy ΔH_t. One factor relates to the sample, viz. particle size or structure (metastable) and the other implicates the calorimetric quantitative analysis method.

Table 1
Solid phase transition data of TlI

Transition		Reference
Temperature, T (°C)	Enthalpy, ΔH_t (vol./mol)	
170	1173±50	[1]
172±2	875±40	[2,3]
181±2	1180±50	[4]
175	–	[5]

References

[1] G.A. Samara, L.C. Walters, D.A. Northrop, J. Phys. Chem. Solids 28 (1967) 1875.
[2] P.-N. Huang, E.A. Secco, J. Solid State Chem. 103 (1993) 314.
[3] E.A. Secco, A. Sharma, J. Phys. Chem. Solids 56 (1995) 251.
[4] E.A. Secco, Thermochim. Acta 342 (1999) 161.
[5] N.N. Greenwood, A. Earnshaw, Chemistry of the Elements, Pergamon Press, Oxford, 1984, p. 272.

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