

As the ratio of In/Te decreases, the percentage of In^{3+} ions in the crystal increases. When $\text{In/Te} = 0.82$, the average valence of In is 2.44, implying that 72% of the In atoms are trivalent. It would appear that as the percentage of In^{3+} ions increases (with decreasing In/Te), the superconducting transition temperatures should decrease. The curve of T_c vs $(1-x)$ in Fig. 1, indicates that T_c does tend to approach 0 as $(1-x)$ approaches 0.67 at which point all In atoms would be trivalent.

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