[tex30] **Entropy of supercooled liquid**

The heat capacity at constant pressure of a substance is C_{sol} in its solid state and C_{liq} in its liquid state. Both quantities can be treated as constants. When the substance melts (at $T = T_M$) it absorbs the latent heat L. Find the entropy difference $\Delta S = S_{liq} - S_{sol}$ between the supercooled liquid state and the solid state at some temperature $T < T_M$.