

3.1 Schematic representations of the microstructures for an iron– carbon alloy of hypo eutectoid composition C_0 (containing less than 0.76 wt% C) as it is cooled from within the austenite phase region to below the eutectoid temperature are determined by constructing a tie line at the temperature T_e ; the phase will contain 0.022 wt% C, whereas the phase will be of the eutectoid composition, 0.76 wt% C. As the temperature is lowered just below the eutectoid, to point f, all of the phase that was present at temperature T_e (and having the eutectoid composition) will transform into pearlite, according to the reaction in Equation g

10.76 wt% C₂ ? The microstructure at point f will appear as the corresponding schematic inset of Figure 3.1. There will be virtually no change in the phase that existed at point e in crossing the eutectoid temperature—it will normally be present as a continuous matrix phase surrounding the isolated pearlite colonies.

cooling heating a 10.022 wt% C₂ Fe₃C 16.70 wt% C₂ .