

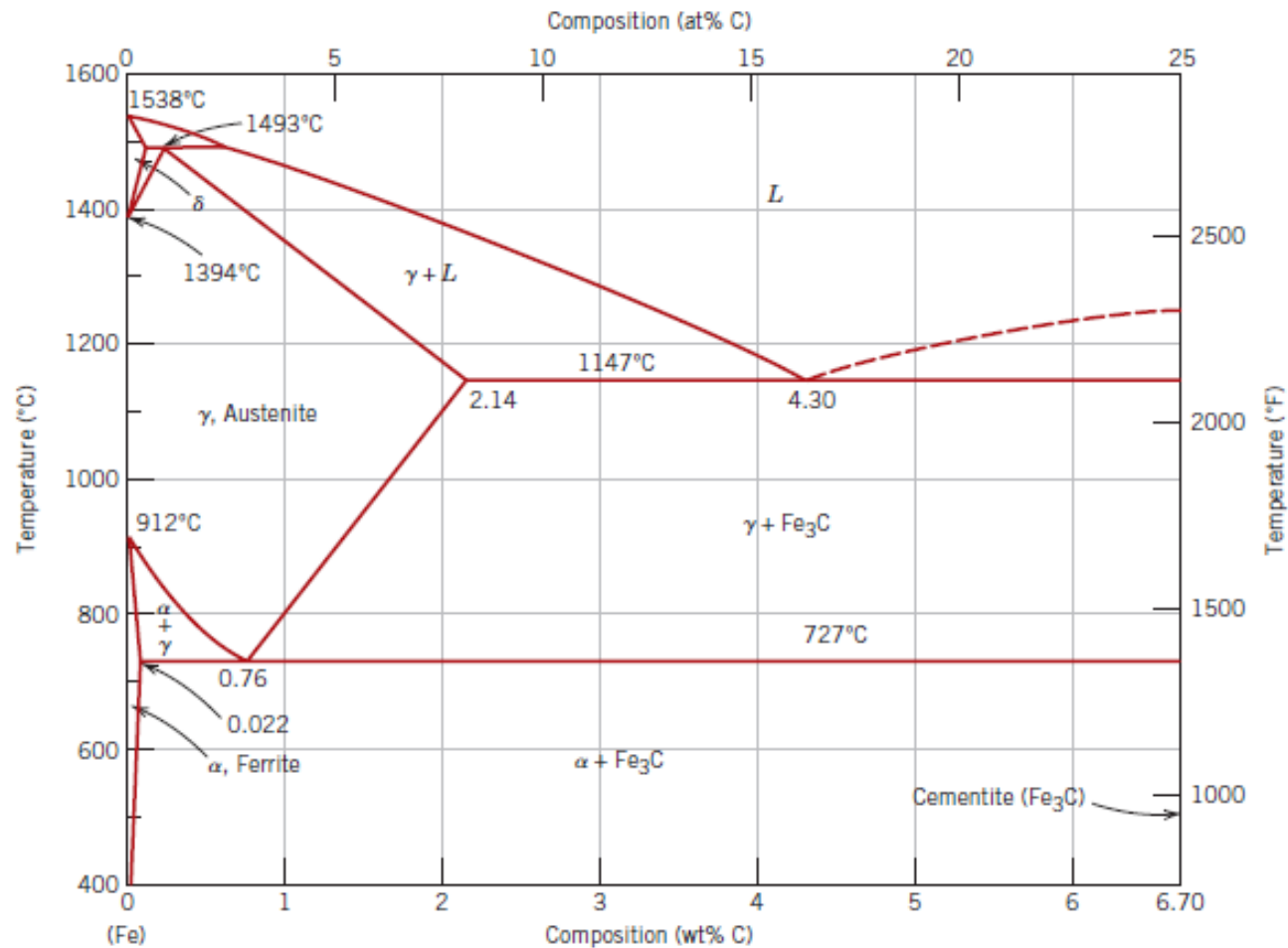


06

MATERIAIS DE CONSTRUÇÃO MECÂNICA

Engenharia Mecânica
Prof. Luis Fernando Maffeis

Diagramas eutetóides



Reação eutetóide

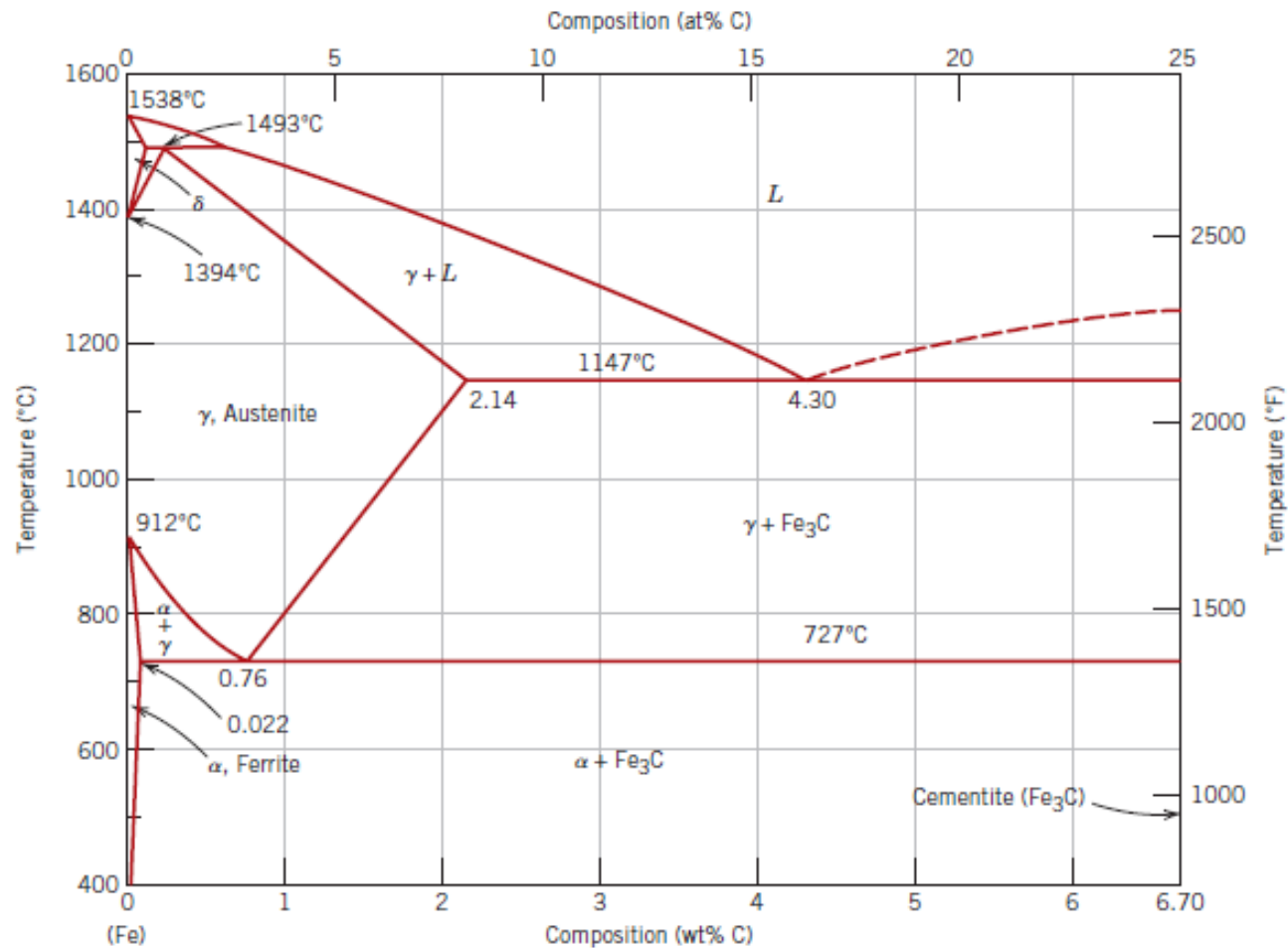
- Uma fase sólida, durante o resfriamento, se transforma em duas fases sólidas diferentes



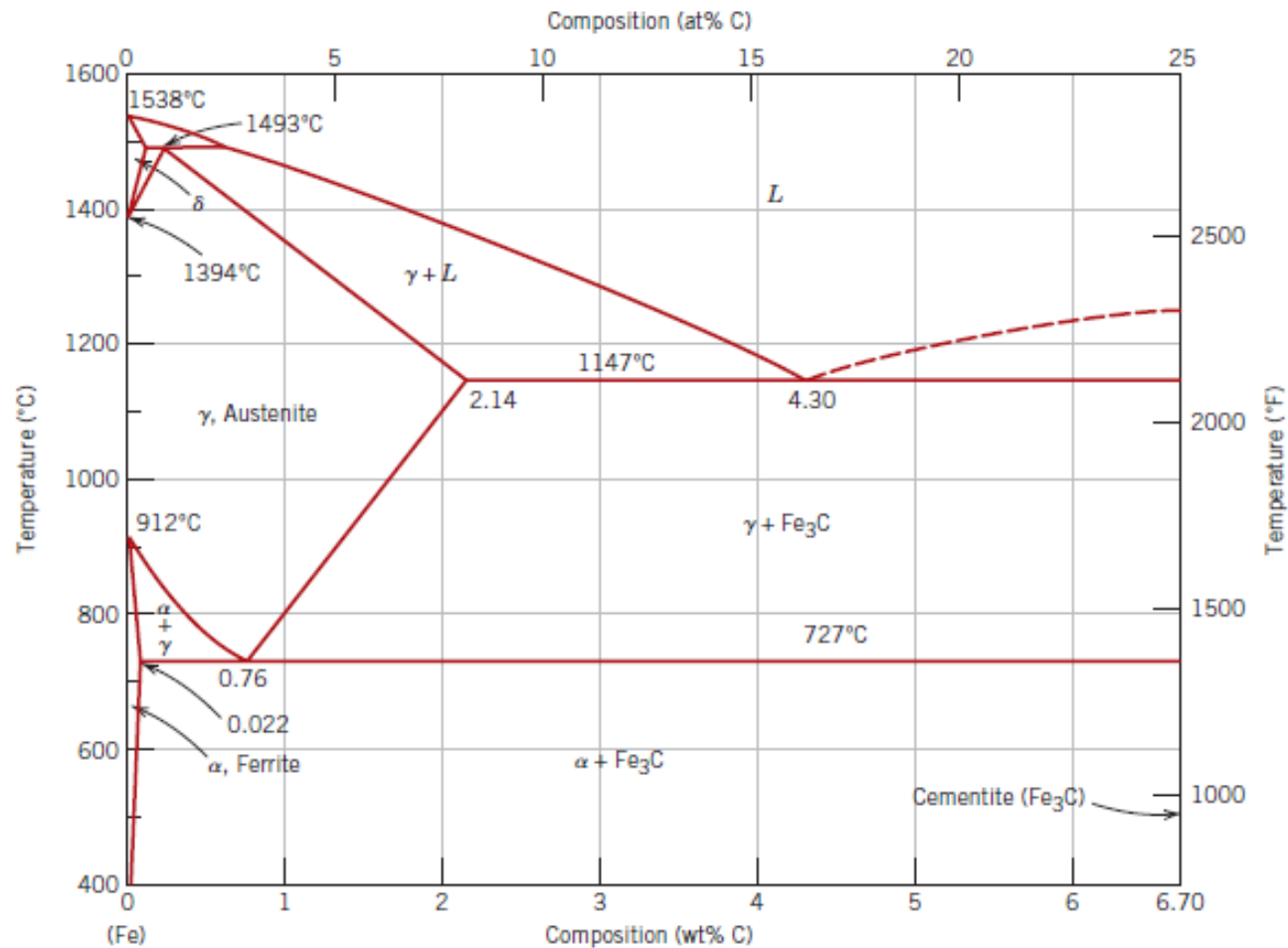
- A temperatura em que a reação eutetóide ocorre é denominada temperatura eutetóide.
- Durante o aquecimento, à temperatura eutetóide, as duas fases sólidas se transformam em uma única fase sólida diferente



Diagramas eutetóides



Diagramas Fe-Fe₃C



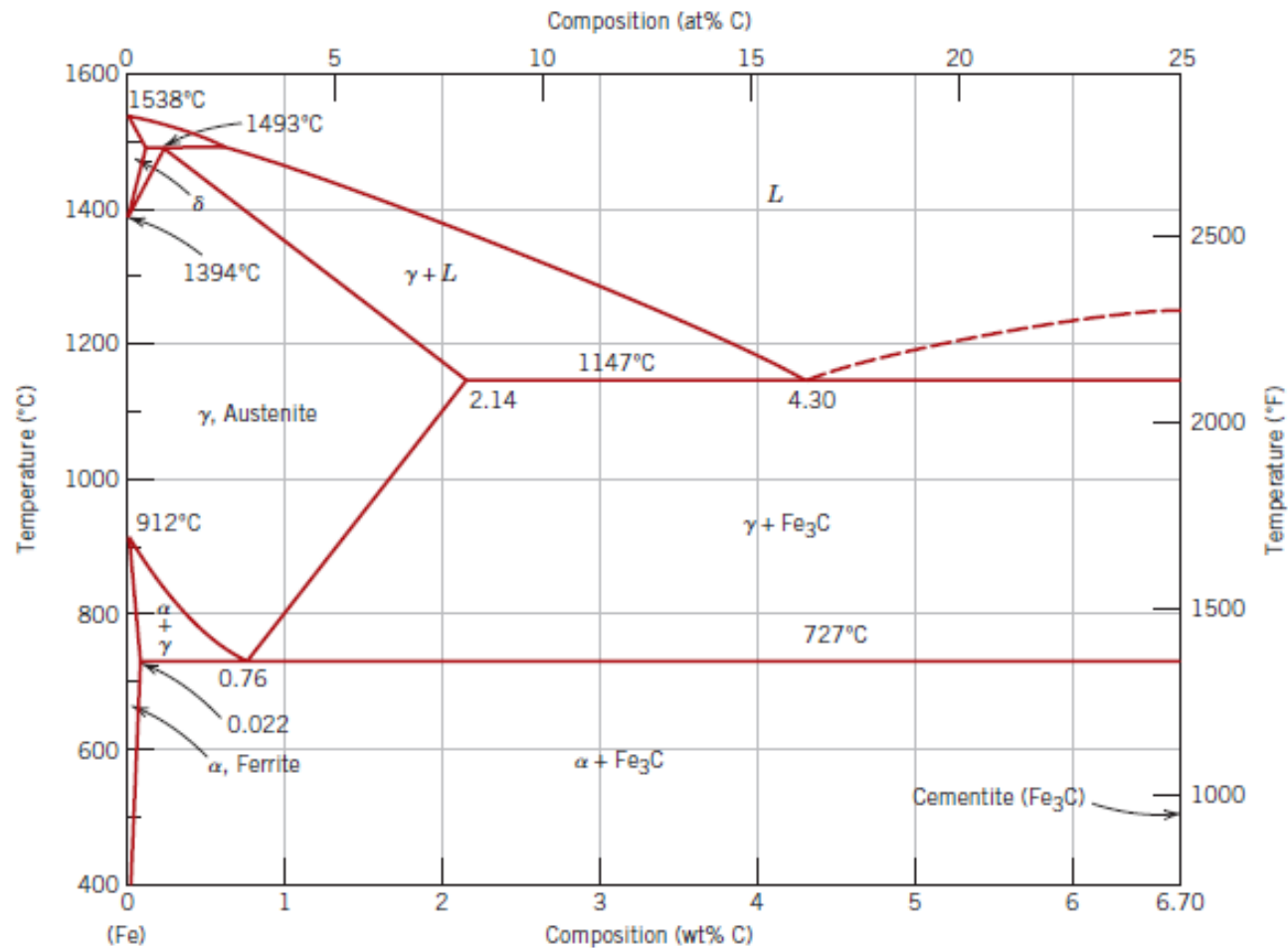
Ferro

- O ferro apresenta, durante o aquecimento, duas mudanças em sua estrutura cristalina antes de fundir:
 - $T < 912\text{ }^{\circ}\text{C}$ -- cúbica de corpo centrado (CCC)
 - $T = 912\text{ }^{\circ}\text{C}$ -- CCC $\rightarrow$ cúbica de faces centradas (CFC)
 - $T = 1394\text{ }^{\circ}\text{C}$ -- CFC $\rightarrow$ CCC
 - $T = 1538\text{ }^{\circ}\text{C}$ -- CCC $\rightarrow$ líquido

Ferro

- $T < 912\text{ }^{\circ}\text{C}$ = ferrita - α - CCC
- $912 < T < 1394^{\circ}\text{C}$ = austenita - γ - CFC
- $1394 < T < 1538\text{ }^{\circ}\text{C}$ = ferrita δ - CCC
- $T > 1538\text{ }^{\circ}\text{C}$ = líquido

Diagramas Fe-Fe₃C



Sistema Fe-Fe₃C

- Reação eutetóide:

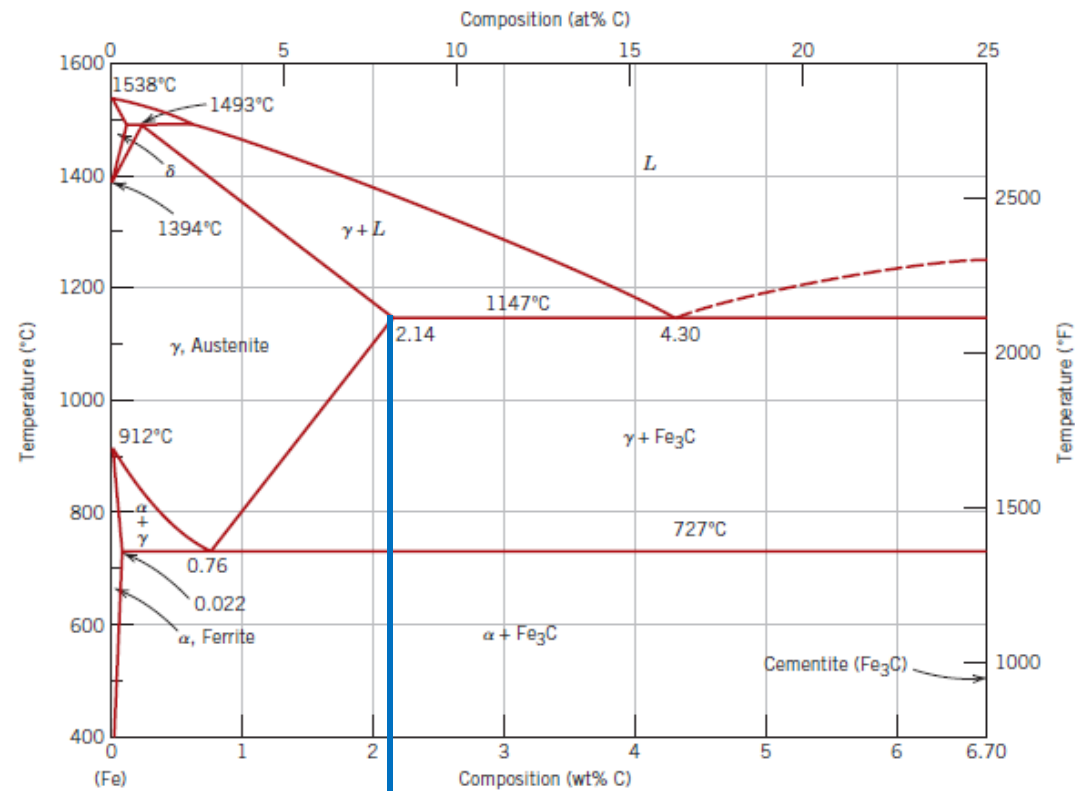


γ = austenita

α = ferrita

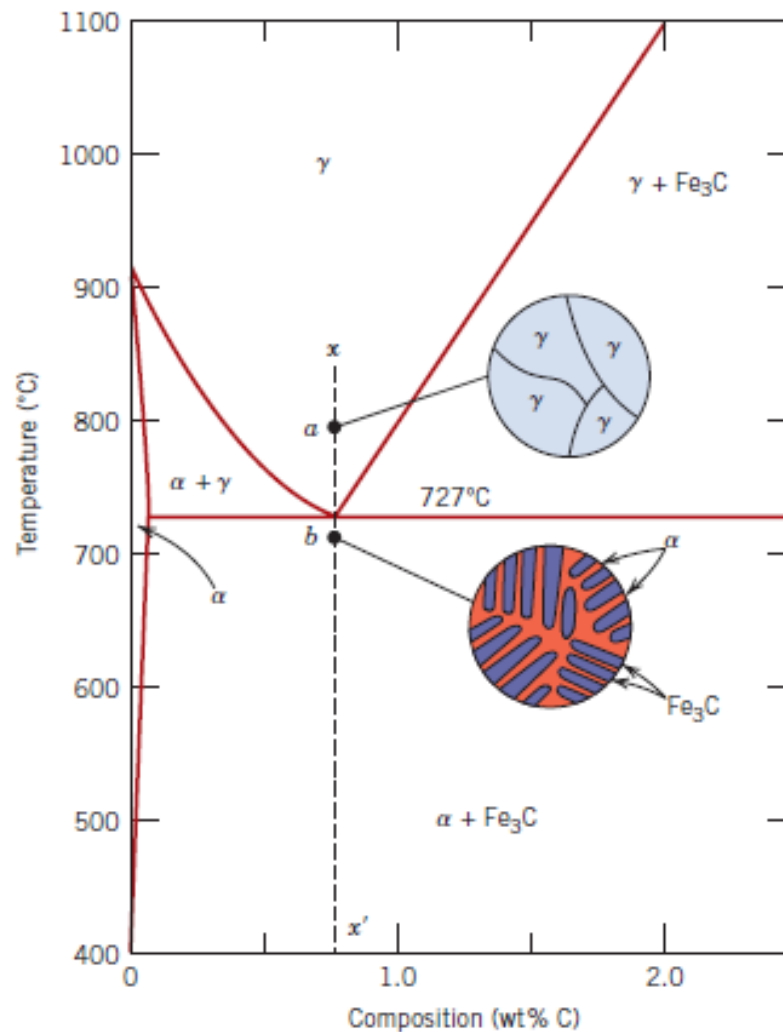
Fe_3C = cementita

Diagramas Fe-Fe₃C



Aços ← → Ferros Fundidos

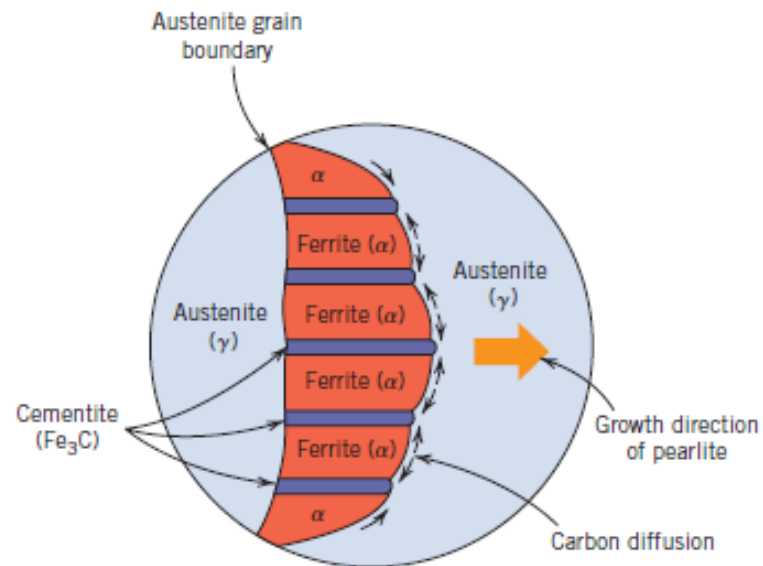
Microestrutura



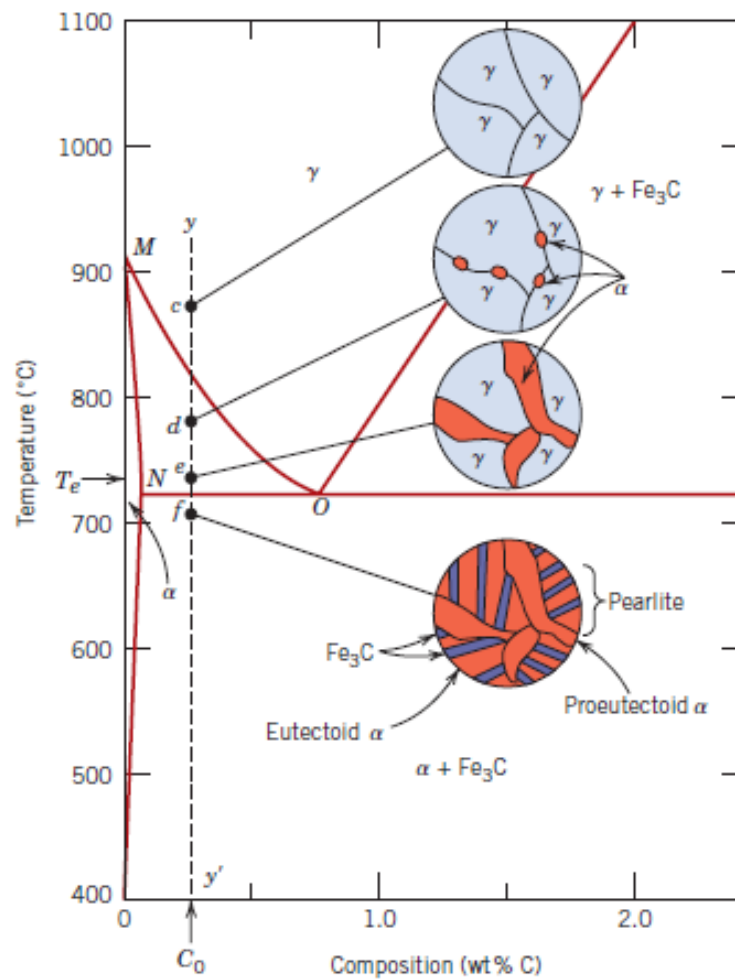
Aço eutetóide
%C = 0,76

Microestrutura

$\alpha + \text{Fe}_3\text{C}$ com forma lamelar (perlita)



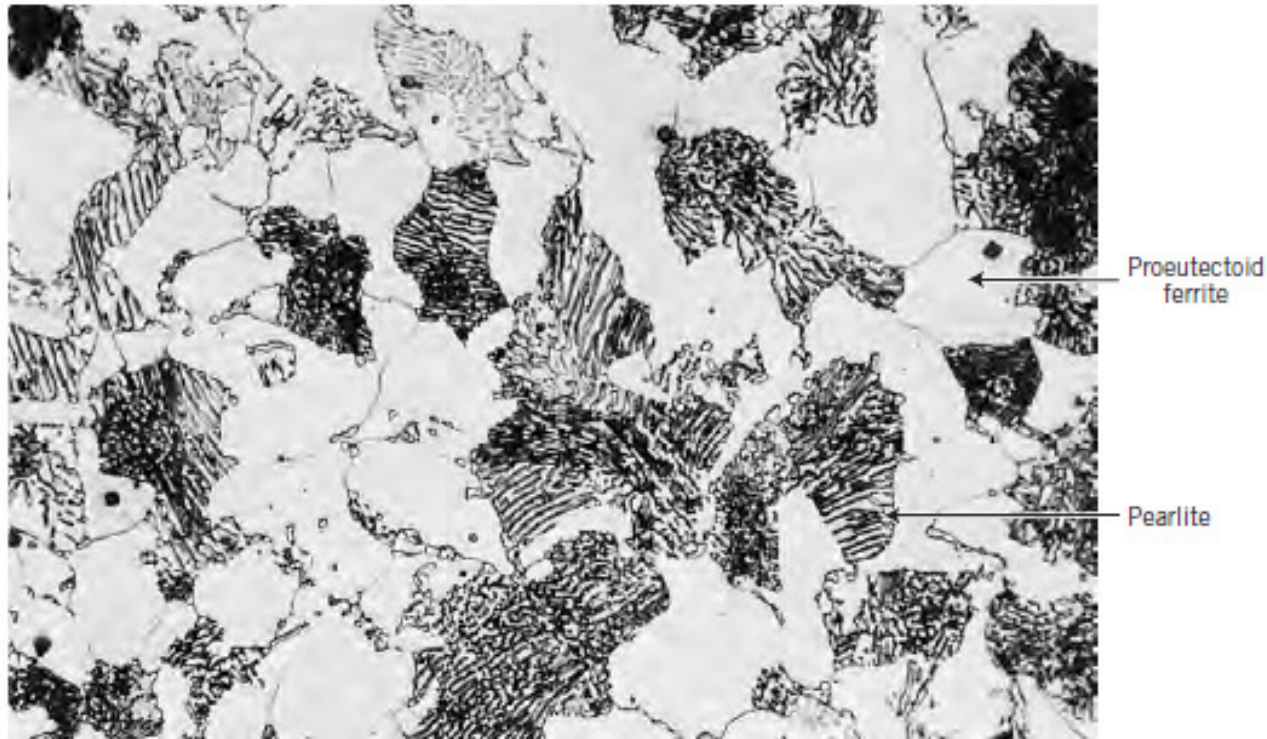
Microestrutura



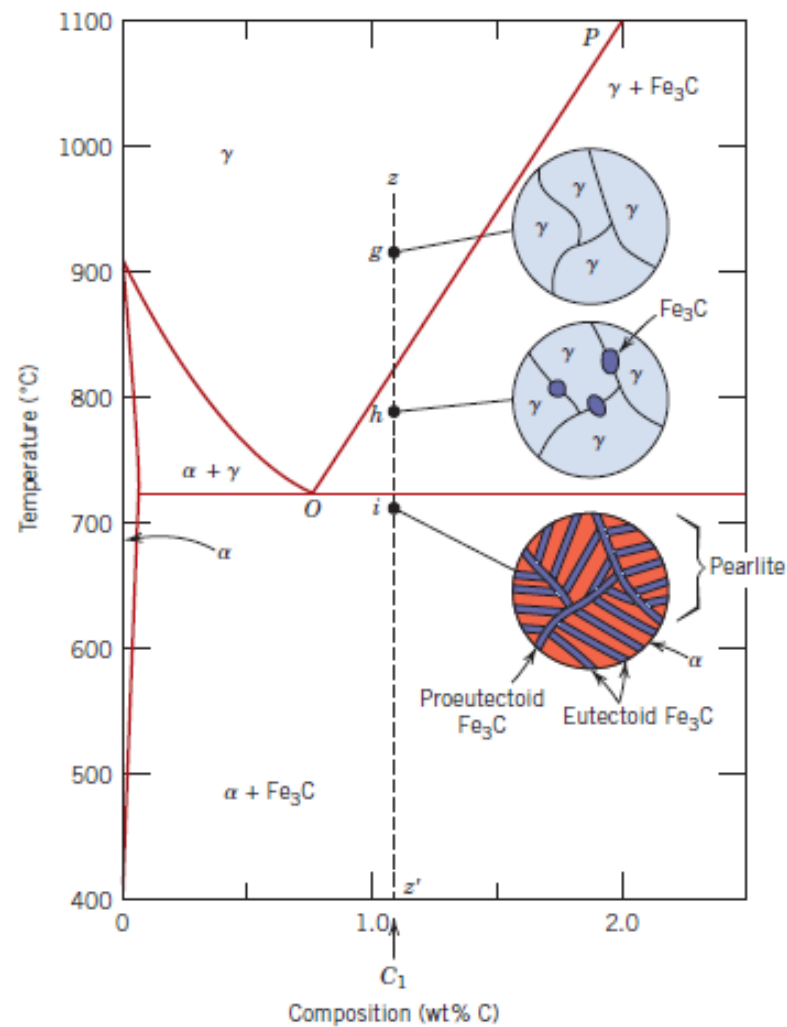
Aço hipoeutetóide
 $\%C < 0,76$

Microestrutura

Aço hipoeutetóide
 $\%C < 0,76$



Microestrutura



Aço hipereutetóide
 $\%C > 0,76$

Microestrutura

Aço hipereutetóide
 $\%C > 0,76$

