

# Lecture 18

Tuesday, May 13, 2008  
10:10 PM

Ref: 1. Reed-Hill, Abbaschian, Physical Metallurgy Principles, 3rd Edition, PWS Publishing Company, 1994.

## Course Notes:

- Exam 2 is next Monday:
  - Like last time -- you will be allowed to bring in a single 4 x 6 card with equations and constants (Only)
  - Like last time -- you will be stapling your equation card to your test when you turn it in
- You have homework due on Friday

## Review:

- Last time we continued our discussion of phase diagrams
- We defined intermetallic compounds
- We defined the monotectic reaction (not in your book):  $L \rightarrow L_1 + S$
- We saw one occur in the copper - lead system
- We then defined the eutectoid reaction:  $S_1 \rightarrow S_2 + S_3$
- And the peritectic reaction:  $L + S_1 \rightarrow S_2$
- We discussed the difference between congruent and incongruent phase transformations -- congruent there is not compositional change
- We then began discussing the Iron-Carbon phase diagram
- We discussed cementite -- iron carbide,  $Fe_3C$  fixed stoichiometric ceramic compound
- We discussed pearlite -- how it is the eutectoid phase formed by segregation and diffusion of carbon
- We discussed the factors which control interlamellar spacing and how a finer spacing leads to increase strength
- That's where we are going to pick up today...

Rest of Lecture is available in PowerPoint Presentation Paired with Lecture 18