

Lecture 22

Thursday, May 22, 2008
8:22 PM

Ref:

1. **ASM Handbook Volume 13, Corrosion.** ASM International, 1987.
2. J.J. Moore, Chemical Metallurgy, 2nd Ed. *Butterworths*, 1990.
3. D. Jones, **Principles and Prevention of Corrosion, 2nd Ed.** *Prentice Hall*, 1996.
4. Fontana & Greene, **Corrosion Engineering.** *McGraw Hill*, 1967.
5. Herro, H. M., "Tubercle Formation and Growth on Ferrous Alloys," *NACE*.

Course Notes:

1. Extra Credit Assignment:
 - At last count there are 15 of you signed up for the extra credit presentations
 - You have until the end of the day today (6:00 pm) to sign up and get your topic approved.
 - Because there will be large participation -- I will break you up into smaller groups
 - Your group and time slot assignments will be emailed to you this weekend
 - You will be expected to attend all of the presentations in your group (approximately 2 hours)
 - Once the timeslots are distributed, you are locked in. If you change your mind and don't show up -- I WILL dock you the 5 points promised.
2. You have a homework assignment due on Friday

Review:

- Last time we continued and finished our discussion on Fracture Mechanics
- We then switched topics to Fatigue -- which is crack nucleation and propagation under cyclical stress application
- We discussed the Bauschinger effect and the energy hysteresis experienced by materials exposed to reversing stress
- We talked about the three stages of fatigue
- We discussed the classic fractographic features which indicated fatigue -- burnished areas and clam shell (or beach) marks
- We discussed the micromechanisms of fatigue crack propagation
- And that's where we pick up today's discussion

Rest of Lecture is available in PowerPoint Presentation Paired with Lecture 22