WebCorr
CORROSION CONSULTING
SERVICES

1 Scotts Road #24-10, Shaw Centre, Singapore 228208
Tel: (+65) 64916456 Fax: (+65) 64916456
Email: webcorr@corrosionclinic.com
www.corrosionclinic.com
Registration No.: 53087135A

WebCorr Corrosion Consulting Services Presents

Stainless Steels and Alloys: Why They Resist Corrosion & How They Fail

Date: As published on website Venue: As published on website

Course Overview

Stainless steels and alloys are perceived to be corrosion resistant but often failed unexpectedly during service. This course will discuss everything you wanted to know about stainless steels and alloys including super-duplex stainless steels and high-nickel-chrome alloys, from its classifications, chemical compositions, microstructures, metallurgy, and mechanical properties to corrosion resistance properties – why they resist corrosion and how they fail in service conditions. Practical advice on the proper selection, fabrication and handling of stainless steel components will be discussed.

Who Should Attend

This one-day corrosion short course provides an excellent avenue for corrosion practitioners, designers, technical managers, inspection and maintenance engineers, quality control personnel and those involved in failure analysis to update their appreciation of corrosion resistance of stainless steels and alloys.

Course Outline

1 Introduction of Corrosion
- 1.1 The economic, social, political and environmental impacts
- 1.2 Liabilities due to corrosion

2 Basic Concepts in Corrosion
- 2.1 Terminologies and conventions
- 2.2 Why do metals corrode
- 2.3 How do metals corrode
- 2.4 Overview of different forms of corrosion

3 Classification of Stainless Steels & Alloys
- 3.1 Ferritic stainless steels
- 3.2 Austenitic stainless steels
- 3.3 Duplex stainless steels
- 3.4 Martensitic stainless steels
- 3.5 Precipitation hardening stainless steels

4 Chemical Compositions, Structures & Properties
- 4.1 Composition, structure and mechanical strength
- 4.2 Composition, structure and corrosion resistance

5 Effects of Intermetallics, Phases & Precipitates
- 5.1 Submicroscopic sigma, chi and Laves phases
- 5.2 Alpha prime phase and 475°C embrittlement
- 5.3 Effects of carbides and nitrides

6 Why They Resist Corrosion:
- Mechanisms of Corrosion Resistance

7 How They Fail: Major Forms of Corrosion
- 7.1 Uniform corrosion
- 7.2 Galvanic corrosion
- 7.3 Intergranular stress corrosion cracking, weld decay and knife-line attack
- 7.4 Crevice corrosion
- 7.5 Pitting corrosion
- 7.6 Microbiologically-Influenced Corrosion (MIC)
- 7.7 Environment-sensitive cracking
- 7.8 Corrosion fatigue
- 7.9 Fretting
- 7.10 Erosion corrosion, impingement attack and cavitation damage
- 7.11 Stray current corrosion

8 How to Control and Prevent Corrosion
- 8.1 Materials Selection
- 8.2 Design Against Corrosion
- 8.3 Corrosion Resistant Coatings
- 8.4 Anodic Protection
- 8.5 Good practices for the optimal performance of stainless steels and alloys: The DOs and DON'Ts

9 End-of-course examination

Course Registration

Please register online at www.corrosionclinic.com
Or use the form below (photocopies of this form may be used for multiple bookings).

Dr/Mr/Ms _____

Organization _____

_____

Contact Person _____

Contact Dept _____

Telephone _____ Fax _____

Email _____

Payment should be made by TT or online banking. Currencies in Australian Dollar, Canadian Dollar, US Dollar, Euro and Sterling Pound can be transferred directly without conversion. Our bank details can be found at the link below:

https://www.corrosionclinic.com/payment.html

Course Fee and Discount

Standard: $2500 **Discount**: $2250

The fee includes a hardcopy of course note, certificate, light lunch, coffee breaks each day during the course.

Discount applies to a group of 3 or more persons from the same organization registering at the same time, or early-birds making payment at least 8 weeks before the course commencing date.

Cancellation and Refunds

Cancellation or replacement should be conveyed to WebCorr in writing (email or fax). An administration charge of 50% of the course fee will be levied if the cancellation notice is received from 14 to 7 days before the course commencing date. No refund will be made for cancellation notice received 6 days and less. No refunds will be given for no-shows. Should WebCorr find it necessary to cancel a course, paid registrants will receive full refund. Refund of fees is the full extent of WebCorr's liability in these circumstances.

WebCorr has NACE certified Corrosion Specialist (#5047) providing customized in-house training, online and distance learning corrosion courses, corrosion seminars and workshops on corrosion, materials, metallurgy, paints and metallic coatings. Our corrosion courses are developed and taught by NACE certified Corrosion Specialist with over 30 years of practical experience in the field. Our training success is measured by your learning outcome.