

Corrosion and Its Prevention (5 days)

Registration Form

Photocopies of this form may be used for registrations.
You can also register online at www.corrosionclinic.com

Please register the following person(s) for the above course (please TYPE or PRINT clearly):

1. Dr/Mr/Ms _____
Designation _____
2. Dr/Mr/Ms _____
Designation _____
3. Dr/Mr/Ms _____
Designation _____

*delete where inappropriate

Enclosed is a cheque / bank draft No. _____
for S\$ _____ (payable to "WebCorr Corrosion
Consulting Services") being Registration Fee for the
above person(s).

Organization _____
Contact Person _____
Contact Dept _____
Telephone _____ Fax _____
Email _____

Crossed cheques should be made payable to
"WebCorr Corrosion Consulting Services" and
mailed together with the registration form to:

WebCorr Corrosion Consulting Services

Toa Payoh Central, PO Box 225,
Singapore 913108
Tel: (65) 64916456
Fax: (65) 64916456

Email: webcorr@corrosionclinic.com
<http://www.corrosionclinic.com>

Course Details

Date: 17-21 May 2010
Time: 9:00 am to 5:00 pm
Venue: PUB WaterHub
Course Fee: S\$2500 (GST not applicable)
Closing Date: 4 weeks before course date
Discount:
Group: (3 or more people): 10%
Early-bird: N% **if paid** "N" months
before the course
commencing date

Withdrawal/Refund Policy:

Withdrawal or replacement should be conveyed to the organizer in writing (email or fax). An administration charge of 50% of the course fee will be levied if the withdrawal notice is received less than 7 working days before the course commencing date. No refund will be made for withdrawal notice received 3 working days and less.

Certificates:

Certificate of attendance will be given to participants with at least 75% attendance of the course.

Cancellation:

WebCorr reserves the right to cancel the course and fully refund the participants should unforeseen circumstances necessitate it.

Corrosion and Its Prevention

Conducted by:

Dr. Qiu Jianhai BEng PhD CEng MIM FICorr
NACE Certified Corrosion Specialist

Date:

17-21 May 2010

Venue:

PUB WaterHub
80 Toh Guan Road East
Singapore 608575

Organized by:



Corrosion Courses Series: Corrosion and Its Prevention (5-days)

Course Overview:

This comprehensive corrosion course consists of 10 half-day modules covering virtually every aspect of corrosion. The course is structured in a flexible modular format so that beginners will establish a strong foothold from the basic modules dealing with the necessary concepts and principles before taking advanced topics, while advanced participants will be able to choose specific modules of their interest. The smooth integration of the 10 half-day modules provide 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 and the awareness of the emerging technologies for corrosion control, prevention, testing and monitoring.

Course Contents

- 1.1 Introduction
- 1.2 Electrical concepts relevant to corrosion
- 1.3 Matters of Substance
- 1.4 Chemical and electrochemical concepts

- 2.1 Why does a metal corrode?
- 2.2 How does a metal corrode? - Kinetics of corrosion

- 3.1 Oxidation of metals & alloys
- 3.2 Oxidation resistance of low-alloy steel
- 3.3 Nature of environments
- 3.4 High temperature corrosion of cast iron
- 3.5 Corrosion of high-alloy steels
- 3.6 Nickel and its alloys
- 3.7 Corrosion of advanced ceramics
- 3.8 Materials for high temperature applications
- 3.9 Current development and future trend

- 4.1 Uniform corrosion
- 4.2 Galvanic corrosion
- 4.3 Dealloying and Graphitisation
- 4.4 Crevice corrosion
- 4.5 Pitting corrosion
- 4.6 Intergranular stress corrosion cracking, weld decay and knife-line attack
- 4.7 Exfoliation
- 4.8 Filiform corrosion

- 4.9 Microbiologically-Influenced Corrosion (MIC)
- 4.10 Environment-sensitive cracking
- 4.11 Hydrogen Damage
- 4.11 Corrosion fatigue
- 4.13 Fretting
- 4.14 Erosion corrosion, impingement attack & cavitation
- 4.15 Stray current corrosion

- 5.1 Corrosion in atmospheres
- 5.2 Corrosion in potable water, natural waters and seawater systems
- 5.3 Corrosion in Soils
- 5.4 Corrosion in Concrete Structures

- 6.1 Design guidelines for corrosion prevention
- 6.2 Corrosion resistance properties of stainless steels and super-duplex stainless steels
- 6.3 Corrosion resistance of other common materials
- 6.4 Corrosion resistance of non-metallic materials
- 6.5 Current development and future trend

- 7.1 Metallic coatings
- 7.2 Organic coatings: - Paints
- 7.3 Composite coatings
- 7.4 Organic coatings and cathodic protection
- 7.5 Current development and future trend

- 8.1 Type, classification and inhibiting mechanisms
- 8.2 Formulation of common corrosion inhibitors
- 8.3 Applications and limitations
- 8.4 Volatile corrosion inhibitors (VCI)
- 8.5 Film-forming rust-proof materials
- 8.6 Control of relative humidity
- 8.7 Deaeration
- 8.8 Current development and future trend

- 9.1 Cathodic Protection: Theory, Practice and Applications
- 9.2 Anodic Protection: Theory, Practice and Application
- 9.3 Cathodic or Anodic, which method to use?
- 9.4 Current development and future trend

- 10.1 Type and classification of corrosion testing
- 10.2 The nature of corrosion process
- 10.3 Conventional methods
- 10.4 Electrochemical methods
- 10.5 Principal online corrosion monitoring techniques
- 10.6 Other methods of corrosion testing and monitoring
- 10.7 Current development and future trend

Who Should Attend

This 10-day corrosion short course has been structured in such a way that it is particularly suited for the technologists and engineers who wish to gain in-depth overall knowledge of corrosion and corrosion control, and also to the more experienced corrosion practitioners who may want to update their knowledge in a particular area.

Course Lecturer

Dr. Qiu Jianhai *BEng PhD CEng MIM FICorr*

Dr Qiu obtained his BEng and PhD degrees both in the field of corrosion. He has 28 years industry, university teaching, research and consulting experience in the field of corrosion. He has been working closely with both local and overseas companies and has been an active consultant to governmental agencies, multinational companies and private organizations on corrosion and materials related issues such condition assessment, process optimization, quality control, corrosion testing and monitoring, life predictions, trouble-shooting and corrosion failure analysis. Dr. Qiu is also experienced in providing expert witness and assistance in litigation and arbitration matters related to corrosion and materials. He has authored about 120 technical papers and reports. Dr. Qiu was an invited contributing author to the latest edition of ASM Handbook Vol.13C Corrosion: Environments and Industries. His biographical profile was included in the 7th edition of Marquis Who's Who in Science and Engineering.

Dr. Qiu is a NACE certified Corrosion Specialist (USA), the only person in Singapore certified by NACE to the highest level of professional certification. He is a Fellow Member of the Institute of Corrosion (UK), a Chartered Engineer registered with the Engineering Council (UK). Dr. Qiu is a Singapore representative in the International Corrosion Council (ICC).