

Corrosion Control and Prevention for Military Equipment and Systems

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 Mobile: (65) 97110759
Fax: (65) 64916456
Email: webcorr@corrosionclinic.com
<http://www.corrosionclinic.com>

Course Details

Date: TBA
Time: 9:00 am to 5:00 pm
Venue: TBA
Course Fee: S\$1495 (GST not applicable)
Closing Date: 2 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 Control and Prevention for Military Equipment and Systems

Conducted by

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

Date
TBA

Venue
TBA

Organized by:



Course Overview:

This two-day course will cover both the principles of corrosion and the practice of its control and prevention in the military service environments with the aim to increase the combat readiness/preparedness and the reliability of military equipment and systems, including military vehicles, ordnance systems, equipment and supporting systems operating on land, in air and in sea.

This corrosion short course can be taken as in-house training course, online course and distance learning course worldwide. It can also be customized to meet the specific needs of your organization.

Course Contents

- 1 Corrosion in the Defence Industry
 - 1.1 Corrosion: What it is
 - 1.2 Its economic, social, political and environmental impacts
 - 1.3 Corrosion & the military: Lessons of History
- 2 Basic Concepts in Corrosion
 - 2.1 Terminologies and conventions
 - 2.2 Why do metals corrode
 - 2.3 How do metals corrode
- 3 The Nature of Military Service Environment
 - 3.1 Effect of environment on the rate and forms of corrosion
 - 3.2 General classification of environments
 - 3.3 Classification of military service environments
 - 3.4 Atmospheric corrosion of military equipment and systems
- 4 Different Forms of Corrosion in Military Equipment and Systems
 - 4.1 Uniform corrosion
 - 4.2 Galvanic corrosion

- 4.3 Dealloying and graphitization (graphitic corrosion)
 - 4.4 Intergranular stress corrosion cracking, weld decay and knife-line attack
 - 4.5 Exfoliation
 - 4.6 Crevice corrosion
 - 4.7 Pitting corrosion
 - 4.8 Filiform corrosion
 - 4.9 Microbiologically-Influenced Corrosion (MIC)
 - 4.10 Environment-sensitive cracking
 - 4.11 Hydrogen damages: hydrogen blistering, HIC, hydrogen embrittlement
 - 4.12 Corrosion fatigue
 - 4.13 Fretting
 - 4.14 Erosion corrosion, impingement attack and cavitation damage
 - 4.15 Stray current corrosion
- 5 Materials & Processes for Corrosion Control & Prevention in Military Equipment & Systems
 - 5.1 Materials selection & design
 - 5.2 Economic consideration
 - 5.3 Protective coatings for military applications
 - 5.4 Preservation of military equipment – comparison of various methods
 - 5.4.1 Classification of Military Service Environment
 - 5.4.2 Some key factors in preservation
 - 5.4.3 Controlled humidity
 - 5.4.4 Moisture and corrosion
 - 5.4.5 Sources of water in enclosures
 - 5.4.6 Barrier materials
 - 5.4.7 Water vapor transmission rate
 - 5.4.8 Basics of corrosion inhibitors
 - 5.4.9 Volatile corrosion inhibitors
 - 5.4.10 Corrosion preservation methods used by military organizations worldwide
 - 5.5 Corrosion Testing & Monitoring
 - 5.6 Corrosion and cathodic protection of underground pipelines

Who Should Attend

This course has been structured in such a way that it is particularly suited for military officers, designers, technologists, engineers, technical service and maintenance personnel who deal with military equipment and systems.

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 27 years of industry, university teaching, research and consulting experience in areas of corrosion and its prevention. 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 as corrosion design review, materials selection and life prediction, corrosion inspection and condition assessment, plant process optimization, corrosion training, corrosion testing and monitoring, trouble-shooting and corrosion failure analysis. Dr Qiu has recently completed the design of a cathodic protection system for the upcoming Marina Coastal Expressway (MCE) Tunnels. Dr. Qiu is also experienced in providing expert witness and assistance in litigation and arbitration matters related to corrosion and materials. He has authored over 120 technical papers and reports. Dr. Qiu was an invited contributing author to the latest edition of the world renowned 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 to the highest professional level by NACE (National Association of Corrosion Engineers, USA). He is a Chartered Engineer registered with the Engineering Council (UK), a Fellow of the Institute of Corrosion (UK) and a professional member of the Institute of Materials, Minerals and Mining (UK). Dr. Qiu is the Singapore representative in the International Corrosion Council (ICC).