WebCorr
CORROSION CONSULTING
SERVICES

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• Consulting • Training • Expert Witness • Failure Analysis • Design Review • Corrosion Test • Modeling • Coatings • Materials • Cathodic Protection

WebCorr Corrosion Consulting Services Presents

Corrosion in Oil Refineries: Inspection, Monitoring and Control

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

Course Overview

Statistics shows that the total cost of corrosion control in refineries in the US alone is estimated at $3.692 billion. Of this total, maintenance-related expenses are estimated at $1.767 billion annually, vessel turnaround expenses account for $1.425 billion annually, and fouling costs are approximately $0.500 billion annually. Significant cost reduction can be achieved with timely and appropriate corrosion inspection. Asset integrity can be enhanced with corrosion monitoring and corrosion mitigation methods such as materials selection and chemical treatment. This 5-day corrosion short course covers corrosion inspection, corrosion monitoring and corrosion control in oil refineries.

This corrosion short course is available for on-site training, online and distance learning worldwide. It can also be customized to meet the specific needs of your organization.

Who Should Attend

Designers, Inspection Engineers, Maintenance Engineers, Plant Inspectors, Mechanical Engineers, and Process Engineers in the refining and petrochemical industries.

Course Outline

1. Review of Corrosion Basics
   - 1.1 Why Do Metals Corrode? - The Driving Force for Corrosion
   - 1.2 How Do Metals Corrode? - Different Forms of Corrosion
   - 1.3 Practical Corrosion Cells Important to Corrosion Diagnosis
2. Overview of Refinery Operations
   - 2.1 Overview of the Refining Process
   - 2.2 Process Interactions with Corrosion
3. Refinery Corrosion and Inspection
   - 3.1 Low-Temperature Refinery Corrosion
   - 3.2 High-Temperature Refinery Corrosion
   - 3.3 Metal Loss—General and/or Localized Corrosion
     - 3.3.1 Galvanic Corrosion
     - 3.3.2 Pitting
     - 3.3.3 Crevice Corrosion
     - 3.3.4 Intergranular Attack
     - 3.3.5 Erosion-Corrosion

     - 3.3.6 Hydrogen Chloride
     - 3.3.7 Ammonium Bisulfide
     - 3.3.8 Carbon Dioxide
     - 3.3.9 Process Chemicals
     - 3.3.10 Organic Chlorides
     - 3.3.11 Aluminum Chloride
     - 3.3.12 Sulfuric Acid
     - 3.3.13 Hydrofluoric Acid
     - 3.3.14 Phosphoric Acid
     - 3.3.15 Phenol (Carbolic Acid)
     - 3.3.16 Amines
     - 3.3.17 Atmospheric Corrosion
     - 3.3.18 Corrosion Under Insulation (CUI)
     - 3.3.19 Soil Corrosion
     - 3.3.20 High-Temperature Sulfide Corrosion
     - 3.3.21 Naphthenic Acid Corrosion
     - 3.3.22 High-Temperature Oxidation
   - 3.4 Stress Corrosion Cracking (SCC)
   - 3.4.1 Chloride Stress Corrosion Cracking (ClSCC)
     - 3.4.2 Alkaline Stress Corrosion Cracking (ASCC)
     - 3.4.3 Carbonic Acid (Wet CO2)

Course Outline

- 6.2.7 Polysulfides
- 6.2.8 Naphthenic Acid Corrosion Inhibitors
- 6.2.9 Application of Corrosion Inhibitors
- 6.3 Materials Selection for Corrosion Control in Refineries
  - 6.3.1 Carbon Steels and Cast Irons
  - 6.3.2 Low Alloys Steels
  - 6.3.3 Stainless Steels
  - 6.3.4 Copper and Its Alloys
  - 6.3.5 Nickel and Its Alloys
  - 6.3.6 Aluminium and Its Alloys
  - 6.3.7 Titanium and Its Alloys
  - 6.3.8 Refractories, Plastics and Thermosetting Resins
- 6.4 Heat Treatment
  - 6.4.1 Normalizing
  - 6.4.2 Annealing
  - 6.4.3 Quenching
  - 6.4.4 Stress Relieving
  - 6.4.5 Specialized Heat Treatments
  - 6.4.6 Heat Treatment for Welds
- 6.5 Welding
- 6.6 Failure Analysis in Refineries
- 6.7 Corrosion Modelling & Prediction Software

7. 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 ________________________________

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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: $3,500 **Discount**: $3,150

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.