

WebCorr Corrosion Consulting Services Presents

Protective Coatings: Inspection, Maintenance and Repair

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

Course Overview

This 5-day training course thoroughly and systematically covers every aspect of coatings application and inspection techniques, maintenance and repair procedures. Coatings selection, specifications, applications and relevant industry standards for surface preparations of various substrates such as steel, galvanized steel, stainless steel, copper, and aluminum are also discussed in depth. The effect of cathodic protection on the performance of coatings is also covered in detail. This coatings short course trains the participants with the knowledge and skills required for effective coatings inspection, maintenance and repair of both organic coatings (or paints) and metallic coatings such as hot-dip galvanizing and metallic spray (or metallization). This coatings inspection course can be taken as in-house training course, course-on-demand, online course and distance learning course worldwide. It can also be customized to meet the specific needs of your organization.

Who Should Attend

- Engineers and technologists who are in charge of cathodic protection systems.
- Designers who are interested in cathodic protection technology for corrosion prevention.
- Technicians and maintenance personnel who deal with installed cathodic protection systems.
- Facility owners and users who are concerned with corrosion

Course Outline

- 1.0 The Role of a Coating Inspector
- 1.1 The Basic Requirements of A Coating Inspector
- 1.2 Types of Coatings Inspectors
- 1.3 The Roles of Coating Inspectors
- 1.4 Accountability of A Coating Inspector
- 1.5 Coatings Inspection Requirements
- 1.6 Case studies on coatings-related disputes



- 2.0 Corrosion Concepts Relevant to Coatings
- 2.1 Definition and classification of corrosion
- 2.2 Various forms of corrosion and its control
- 2.3 The need for coatings
- 2.4 Major factors influencing corr & coating durability
- 3.0 BS & ISO Classification of Corrosive Environments
- 3.1 British standard & International standard (ISO)
- 3.2 The duration of corrosion: Time of wetness (ToW)
- 3.3 Coatings for protection of corrosion in atmospheres
- 3.4 Coatings for protection of corrosion in water and soil
- 3.5 Coatings for corrosion protection:
 - special situations and special stresses
- 4.0 Characteristics of Coatings
- 4.1 Physical barrier and special functions of coatings
- 4.2 Essential coating properties
- 4.3 Inhibitive primers
- 4.4 Importance of moisture vapor transfer rate (M.V.T.)
- 4.5 MVT and coating blistering
- 4.6 Osmosis and osmotic blistering:
 - causes and prevention
- 4.7 Electroosmosis: causes and prevention
- 5.0 Fundamentals of Coatings
- 5.1 ISO standard: definitions of coatings, paints and lining
- 5.2 Basic components of coatings
- 5.3 Functions of pigment, binder and solvent
- 5.4 General functions of each coat:
 - primer, intermediate coat and top coat
- 5.5 Mechanisms of protection
- 5.6 Common coatings and their compositions
- 6.0 The Protective Coating System
- 6.1 ISO standard definition of terms: pot life, shelf life, DFT, NDFT, VOC, tie coat, stripe coat etc.
- 6.2 Different types of paint

Course Outline

6.3 ISO paint durability classification	11.3 Mechanical or Power Tool Cleaning
6.4 ISO durability vs guarantee time	11.4 Solvent Cleaning/Degreasing Acid Pickling
6.5 Shop and site application: pros and cons	11.5 Abrasive Blast Cleaning
	11.6 High Pressure Water Jetting
	11.7 Flame Cleaning
7.0 Corrosion Resistant Organic Coatings	12.0 BS, ISO, SIS, NACE, SSPC Standards Relevant to Surface Preparation
7.1 Protective coatings classification	12.1 Rust Grades and Preparation Grades
7.2 Mechanisms of curing	12.2 ISO, Swedish and British Standards on Surface Preparation
7.3 Natural-air oxidizing coatings	12.3 ISO Standard on Localized Surface Preparation of Previously Painted Steel
7.4 Synthetic-air oxidizing coatings	12.4 Inspection and Verification of Surface Preparation
7.5 Solvent dry lacquers	12.5 Procedure for the visual assessment of steel substrates
7.6 Coreactive coatings	12.6 Water jetting standard and the various flash rust grades
7.7 Emulsion type coatings	12.7 Interpretation of the various blasting grades: Sa2, Sa2½, Sa3, PMA, PSa2 & PSa2½.
7.8 Heat-condensing coatings	12.8 ISO surface preparation standard for localized repair
7.9 100% solid coatings	
8.0 Corrosion Resistant Zinc Coatings	13.0 Methods of Application
8.1 Zinc and its sacrificial protection to steel substrate	13.1 Brush application
8.2 Organic zinc-rich coatings and its properties	13.2 Roller application
8.3 Inorganic zinc-rich coatings and its properties	13.3 Conventional air spray
8.4 Organic zinc-rich vs Inorganic zinc-rich coatings	13.4 Airless spray
8.5 Hot-dip galvanizing	13.5 Conventional spray vs Airless spray
8.6 Zinc-rich paint vs hot-dip galvanizing	13.6 Electrostatic spray
	13.7 Other methods of application
9.0 Designing for Coatings	14.0 Health and Safety Aspects
9.1 Basic design criteria for corrosion protection	14.1 MSDS and Product Data Sheet Review
9.2 Accessibility, Treatment of gaps, Precautions to prevent retention of deposits and water	14.2 Flash point classification
9.3 Edges, Welding surface imperfections, Bolted connections, Box members and hollow components	14.3 Fire Hazard and Fire Fighting Measures
9.4 Notches, Stiffeners, Prevention of galvanic corrosion, Handling, transport and erection	14.4 Hazardous ingredients
	14.5 General Precautions and First Aid
10.0 Effect of Substrate on Coating Life	15.0 Selection of Coatings
10.1 The Importance of Surface Cleanliness	15.1 Factors influencing coatings selection
10.2 The Substrate Effect & Coating Life	15.2 The process of coatings selection
10.3 Types of Substrates: Steel, Galvanized steel, Stainless steel, Aluminium, Wood & Concrete etc.	15.3 High chemical resistant coatings
10.4 Millscale and its effect on a coating's performance	15.4 Moderate chemical resistant coatings
10.5 Surface contaminants: moisture contamination	15.5 Low chemical resistant coatings
10.6 Surface contaminants: water-soluble salts and osmotic blistering	15.6 High temperature resistant coatings
10.7 ISO standard on acceptable chloride levels on sandblasted surfaces	15.7 Special: zinc-rich coatings
10.8 Surface contaminants: oil and grease	
10.9 Other surface contaminants: fungal/algal growth and efflorescence	16.0 Coatings and Cathodic Protection
11.0 Importance of Surface Preparation	16.1 How coatings protect steels from corrosion
11.1 BS, ISO, SIS, NACE and SSPC Standards on Surface Preparation	16.2 How cathodic protection works
11.2 Hand Tool Cleaning	

16.3 Coating failures induced by cathodic protection
16.4 Coatings suitable for use with cathodic protection
16.5 Economic aspect of specifying coatings with CP
16.6 Cathodic protection criteria safe for coatings
16.7 Laboratory and field test methods

17.0 Coating Failures: Causes and Prevention

17.1 Case studies: Arbitration & Litigation cases arising from coating failures

17.2 Who pays when a coating fails

17.3 The breakdown of coating failures

17.4 Incorrect coatings specifications

17.5 Application errors

17.6 Change in environment from original design criteria

17.8 Faulty paints

17.9 Common coating failures: causes and prevention

17.10 What the owner, applicator and supplier can do to minimize the risk of coating failures

18.0 Coating Repair and Maintenance

18.1 The need for coating maintenance and repair

18.2 The timing of coating repair

18.3 Inspection to determine the extent of coating failure: ISO, ASTM, SSPC & European standards

18.4 Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces

18.5 Repair procedure: ISO Standard

18.6 Repair of common coating failures

19.0 Development of Coatings Specifications

19.1 Development of specifications

19.2 Project specification

19.3 Coatings specification

19.4 Coatings work specification

19.5 Inspection and assessment specification

19.6 How to develop coatings specification for new work

19.7 How to develop coatings specification for maintenance

19.8 Contents of a specification

19.9 Sample specifications for new work, maintenance and inspection



20.0 Quality Control in Coatings Application

20.1 The needs for quality control in coatings application

20.2 Factors to be considered in quality control

20.3 Variables involved in quality control

20.4 Weather conditions

20.5 Dehumidification

20.6 In-process quality control

21.0 Coatings Inspection and Testing

21.1 The needs for inspection and testing

21.2 Relevant international standards applicable to coatings inspection and testing

21.3 The inspection requirements

21.4 Preparation for inspection

21.5 Laboratory and field test methods for surface cleanliness after sandblasting

21.6 Inspection and measurement of surface profile after sandblasting

21.7 Measurement of Ambient Conditions & Environmental Test Instruments

21.8 Nondestructive Testing and Inspection

21.9 Nondestructive Testing Instruments

21.10 Use of Inspection Procedures for Both Destructive and Nondestructive Test Instruments

21.11 Laboratory Instruments and Test Methods

21.12 Measurements of wet film thickness (WFT) and dry film thickness (DFT)

21.13 Holiday detection

21.14 Single coat vs multicoat

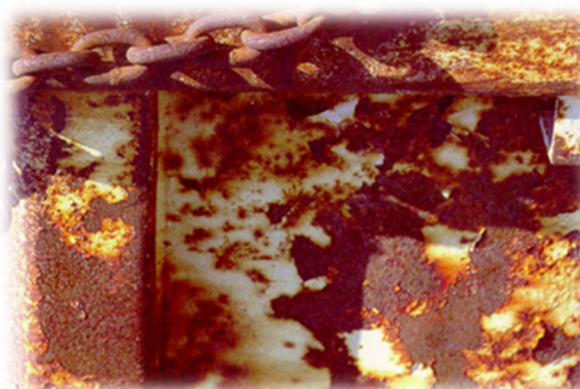
21.15 Inspection Procedures

21.16 Documentation and Logbook

21.17 Inspection Checklist

22. Glossary of Technical Terms in Coatings and Corrosion

23. 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: \$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.

