

ABYC Corrosion Certification, Course Outline:

Day one:

The course will begin with a discussion of corrosion chemistry, with a look at the corrosion potentials of the various marine metals used. Discuss the galvanic series to help in evaluating how different metals interact.

The galvanic cell will be defined and studied at length and a discussion of the significance of the area ratios of the various metals in question will be elaborated on.

A detailed lecture on the identification methods for varying types of corrosion such as crevice, pultice, biological, exfoliation to name a few, will follow.

The day will close with an introduction to the principles of cathodic protection theory.

Day Two:

The day will begin with a detailed look at cathodic protection methods and applications, with conclusions on which system or method is best for various metals used.

The discussion will continue with a look at the properties of specific metal alloys used and their best applications to minimize the corrosion potential.

The day will close with a comparison of the properties, pros and cons and application of the three anode materials used, zinc, aluminum and magnesium.

Day Three:

The day will begin with a detailed look at both Type 1 and Type 2 impressed current cathodic protection systems. Matters concerning their selection, installation and trouble-shooting procedures will be covered in-depth.

Next, the lecture will look at the negative side effects of cathodic protection systems and how to minimize these effects.

The discussion will continue with a look at matters related to internal system cathodic protection for such things as heat exchangers, exhaust systems, engines tanks and bilge water areas.

The day will close with a look at paints, both for isolation as part of a cathodic protection system, and anti-foulants and how they affect the overall system.

Day Four:

The corrosion survey will be the focus of the day's topics. We'll begin with a look at what's necessary to collect important and pertinent background and history for the case in question. Next, we'll look at the details of visual inspections in the areas of: electrical systems, boat general condition, in water inspection, out of water inspections.

We'll then proceed into the nuances of interpreting electrical test meter readings for such things as DC stray current, dock potential vs. hull potential, AC current presence in the grounding circuit, and isolation of cable TV and phone circuits to the dock. We'll compare reading potential differences with the boat in or out of the water. Next, we'll discuss how to troubleshoot AC shorepower problems.

We'll close with a look at corrosion potential measurements and interpretations, how to isolate problems.

Day Five:

The morning session will consist of a detailed review and wrap up of the previous four days course material.

The afternoon will allow three hours for the certification exam.