James Cor Map

A simple economical method for identifying areas of probable rebar corrosion.

Features and Benefits

- **Easy to use**
- **Detachable electrode extension pieces facilitate measurements in hard to reach locations**
- **High impedance digital meter is designed for tough field conditions**
- **Economical**
- **Conforms to ASTM C-876**

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Technical Specifications

The CorMap System

CorMap in use, taking corrosion potentials of parking deck

Technical

Corrosion, which is an electrochemical process, occurs in concrete when oxygen and moisture are present. The actual corrosion is an exchange of energy within different sections of the uncoated reinforcing steel. The relative energy levels can be determined in relation to a reference electrode with a stable electrochemical potential.

By connecting a high impedance voltmeter between the reinforcing steel and a reference electrode placed on the concrete surface, a measurement can be made for the half cell potential at the location of the reference cell. This then is a measurement of the probability of corrosion activity in the steel in the vicinity of the reference cell.

The reference cell is copper in copper sulphate solution.

By taking half cell potential measurements a fixed distance apart a grid of half cell potentials can be quickly made and thus areas delineated with a high probability of corrosion of the reinforcing steel.

To analyze the results, the measurements made with Cor Map can be plotted on a grid and lines of equipotential contours drawn, highlighting areas of possible corrosion activity.

For example the following guide is listed in ASTM C-876 using a copper/copper sulphate half cell:

- For readings of –350mV and greater there is a 95% chance of active steel corrosion
- For readings –200 to –350mV there is a 50% chance of active steel corrosion
- For readings less than –200mV there is only 5% chance of active steel corrosion

The method is particularly useful for:

- **Bridge Decks**
- **Parking Garages**
- **Concrete Piers & Docks**
- **Substructure**
- **Tunnel Lining**
- **Foundations**

Sales Numbers & Specifications

C-CM-4500 High impedance voltmeter
C-CM-4410 Electrode extension pieces—each 18 inches (41 cm) long
C-CM-4400 Reference electrode including copper sulphate reservoir
C-CM-4210 Container of copper sulphate (capacity 250 ml)
C-CM-4220 Wetting agent reservoir (capacity 125 ml)
C-CM-4420 Dispensing sponge
C-CM-4300 Cable reel with 250 ft. (80 meters) cable
C-CM-4000 Complete system

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