Embeddable reference electrode for potential reading (ERE 20)

The ERE 20 is a true, long life Reference Electrode, which can be cast into the cover concrete to check the cathodic protection and to monitor the corrosion state of reinforcing steel or predict corrosion.
Normally in newly cast concrete structures, but the electrode can also be installed in existing structures.

The potential of ERE 20 is virtually independent of changes in the chemical properties of the concrete. It can, therefore, be used in wet or dry concrete, whether exposed to chlorides or to carbonation.

Based on proven battery technology, the ERE 20 is a true half-cell using a manganese dioxide electrode in steel housing with an alkaline, chloride-free gel. The steel housing is made of a corrosion resistant material. The pH of the gel corresponds to that of pore water in normal concrete, so errors due to diffusion of ions through the porous plug are eliminated.

The ERE 20 can easily be attached to a logger in order to monitor data. Remote monitoring by modem is also possible.

Advantages
Control of cathodic protection
For potential measurement in wet and dry concrete
Can be exposed to chloride or carbonation
Does not induce corrosion in steel
Does not change potential of steel
Easy to install in new or old structures

Example

The ERE 20 is used to check the correct operation of the cathodic protection in structures. Figure 1 shows a typical curve found on checking a CP-system.

The reinforcing steel to be protected shall be polarised a minimum of 100 mV at anodic locations. When using the polarisation decay method, the decay is determined by interrupting the protective current and monitoring the reinforcement's potential measured relative to a stable reference electrode.

When the current is interrupted, an immediate voltage shift is the result of eliminating the IR-drop and is not to be included in the polarisation measure ments.

According to EN 12696 the Polarisation Decay should be met within 24 hours.

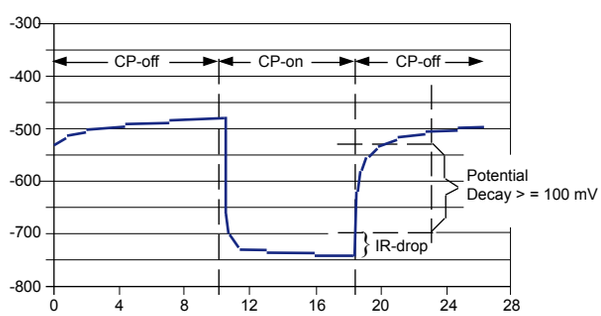

Figure 1: Polarisation curve from CP-system