

Permanent Reference Cells

Permacell Plus

Permanent reference cells measure electrical potentials. Test stations provide contact points for surveying buried metallic structures. Combining these two devices, Corrpro developed Permacell Plus, a totally integrated monitoring system, which provides easy access to vital corrosion related data. The system is composed of a test station, lead wire, and permanent reference cell. The test station on the system is equipped for monitoring up to 4 structures, and is made from ultraviolet- and chemically resistant inert tubing. To reduce operator error, test leads on the station are specially configured, with the cell contact at the centre of the test head, and the structure contacts along the perimeter. The test leads themselves are made from solid brass. They are slightly recessed into the test head, and are clearly marked for fast and trouble-free readings. To protect against damage from chemicals found in many buried environments, insulated copper wire is used to connect the test station and reference cell. This wire is covered by flexible tubing to provide an extra level of mechanical protection to the wire.

Electrical stability is the most important aspect of any reference cell. Permacell Plus has unsurpassed stability, with a thirty-year design life, and an accuracy level of within five millivolts. The system's impressive performance is due in large part to its reference cell element. The cell is composed of a 99.99% pure copper element, which is housed in a specially designed porcelain cup. An inside track within the cup greatly reduces the chance for ion intermixing, and ensures cell purity. Surrounding this cup is a thixotropic stabilized gel backfill. This backfill material greatly reduces the cell's electrical resistance to the earth and does not require moistening.

Permacell Plus can be used to measure the electrical potentials on all types of buried structures. It is offered with either pole- or flush-mount test stations, and is ideally suited for structures, such as underground storage tanks, which are located under pavement or other impediments. The system is not recommended for use in areas with high chloride concentrations.



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Permacell 801

The Permacell 801 copper/copper sulphate cell is ideal for use in cathodic protection systems operated in fresh water storage tanks, clarifiers, travelling screens, pasteurizers, locks, dams and fresh water dock structures. The cell can be operated in temperatures of up to 135°F, but should not be used in waters containing high concentrations of chloride ions.



Permacell 802

The Permacell 802 permanent copper/copper sulphate reference electrode reference cell is designed to measure electrical potentials on buried metallic structures such as underground pipelines and storage tanks. It is ideal for structures located under pavement or other impediments which prevent the use of a portable cell. The cell can be operated in temperatures up to 135°F, but should not be used in areas containing high chloride concentrations. The cell should be installed below the frost line in relatively moist soil.

Permacell 803

The Permacell 803 permanent silver/silver chloride reference cell is designed to obtain potential readings on structures located in brackish or salt waters. The cell is not affected by the presence of chloride ions and maintains an accuracy level of plus or minus five millivolts. It can be operated in temperatures ranging from 33° to 140°F, but should not be installed in areas with high concentrations of sulfides or bromides. The cell can be installed to depths of up to 50 feet.

Permacell 804

The Permacell 804 silver/silver chloride reference electrode is designed for use in high chloride electrolytes. It is ideal for taking potential measurements on pipelines, tanks and other structures buried in coastal areas. It can also be used to test reinforced concrete structures. With this type of application, the cell is provided without a backfill. Operation of the cell is limited to electrolytes with temperatures between 33° and 140°F. The cell should not be installed in areas with high sulfide or bromide concentrations.



Porous Pot Reference Cells (British Gas/ Transco Type)

The porous pot copper/copper sulphate Reference Electrode is ideal for use on buried metallic structures, i.e. pipelines storage tanks etc. where permanent potential readings are required. The copper sulphate is in gel form, which reduces losses to a minimal rate and gives this type of reference cell a very long life. The porous pot allows optimum contact with the surrounding soil and can be supplied pre-packaged in a low resistance backfill, which also carries the added benefit of protection against physical damage during storage and installation. Typical electrical stability is plus or minus 5 millivolts. Installation should be below the frost line in moist soil.

Borin™ Manufacturing's Stealth™

These packaged stationary reference electrodes for underground service are available in the following three models:-

SRE-001-CUY- Copper Copper Sulphate for underground service

SRE-002-SUB- Silver Silver Chloride for underground service

SRE-003-ZUR- Zinc Zinc Sulphate for underground service

Borin™ Manufacturing's Stealth™2

These stationary reference electrodes for underground service are available in the following three models:-

SRE-007-CUY- Copper Copper Sulphate for Fresh Water Service

SRE-008-SUB- Silver Silver Chloride for High Chloride Water Service

SRE-009-ZUR- Zinc Zinc Sulphate for Fresh Water Service