Electrolytic Moisture Analyzers – Principle of Operation

Based on Faraday's Law of Electrolysis, the MEECO cell absorbs and electrolyzes moisture at fractional parts-per-million (ppm) or other units of measure. How: One hundred percent of the sample moisture is absorbed by a phosphorus pentoxide (P_2O_5) film that covers two spirally-wound electrodes embedded in a hollow glass tube. When the sample gas enters the cell at a known flow rate, the film absorbs all the moisture molecules present. By applying an electrical potential (voltage) to the electrodes, each absorbed water molecule is electrolyzed, generating a finite current. This current is precise and proportional to the amount of absorbed water. It is, therefore, an exact, direct measurement of the water vapor present in the sample gas.