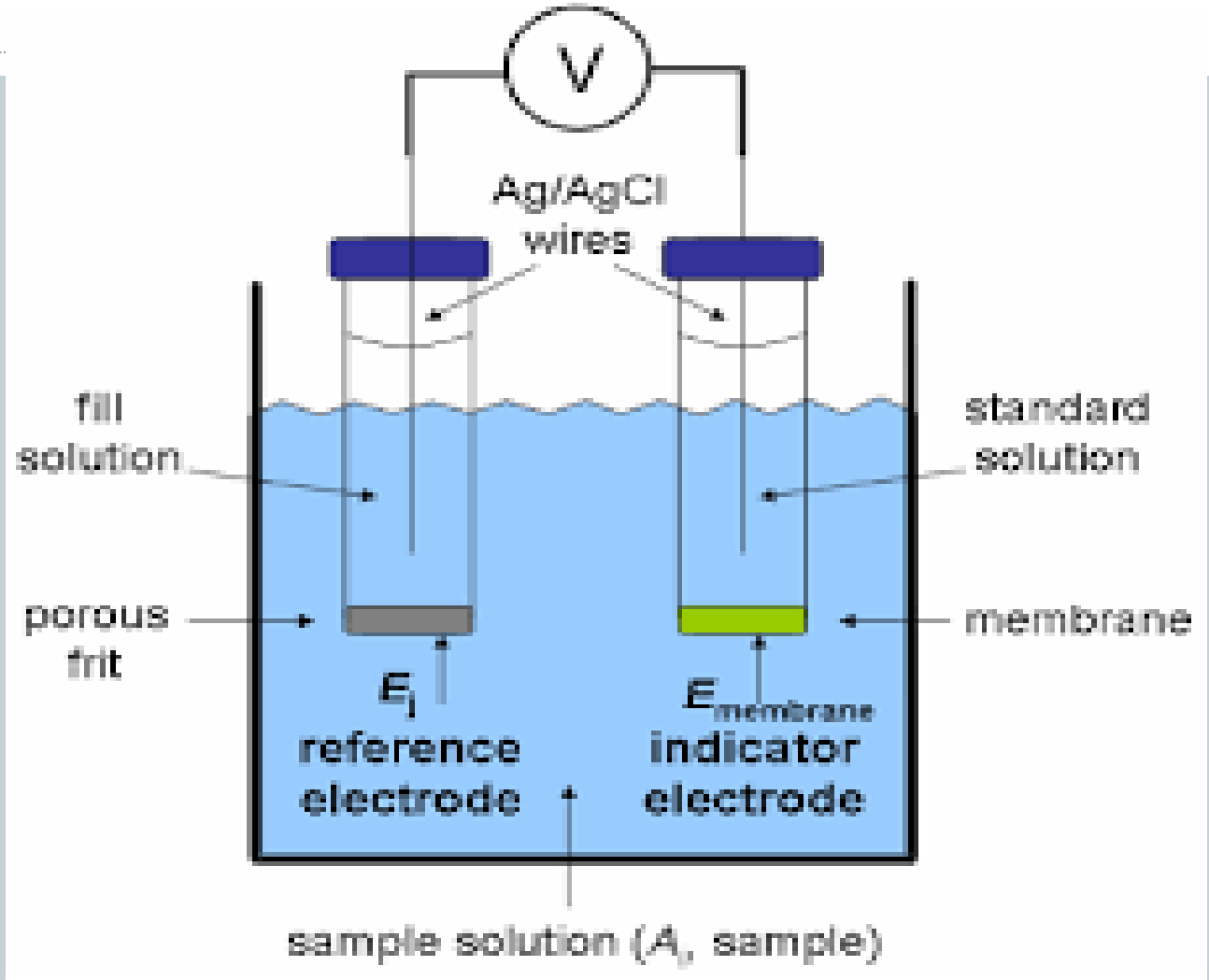
KEY WORD AND DEFINITIONS

- **Electrode:** A conductor through which an electrical current enters or leaves a nonmetallic portion of a circuit.
- **Indicator electrode**: Used in potentiometry that produces a potential representative of the species being measured.
- **Reference electrode**: Is an electrode at which no appropriate current is allowed to flow and which is used to observe or control the potential of the indicator or working electrode, respectively.

- **Potentiometry:** An electrochemical process where the potential difference is measured between an indicator electrode and reference electrode when no current is allowed to flow in the electrochemical cell.

WORKING PRINCIPLE

- Membrane potentials are caused by the permeability of certain types of membranes to selected anions or cations.
- Such membranes are used to fabricate ion-selective electrodes that selectively interact with a single ionic species.
- The potential produced at membrane-sample solution interface is proportional to the logarithm of the ionic activity or concentration of the ion in question



- Measurements with ISEs are simple, often rapid, nondestructive, and applicable to a wide range of concentrations.
- The ion-selective membrane is the “heart” of an ISE as it controls the selectivity of the electrode.
- Ion-selective membranes typically consist of glass, crystalline, polymeric materials.

- Ionic-selective electrodes are widely used clinically for the measurement of **pH, PCO2 and electrolytes in whole blood, serum, plasma and urine.**