BAB 10
Elektroda Indikator:
pHmeter

Elektroda Indikator disebut juga sebagai ELEKTRODA SELEKTIF ION

Elektroda indikator dibagi menjadi 2:

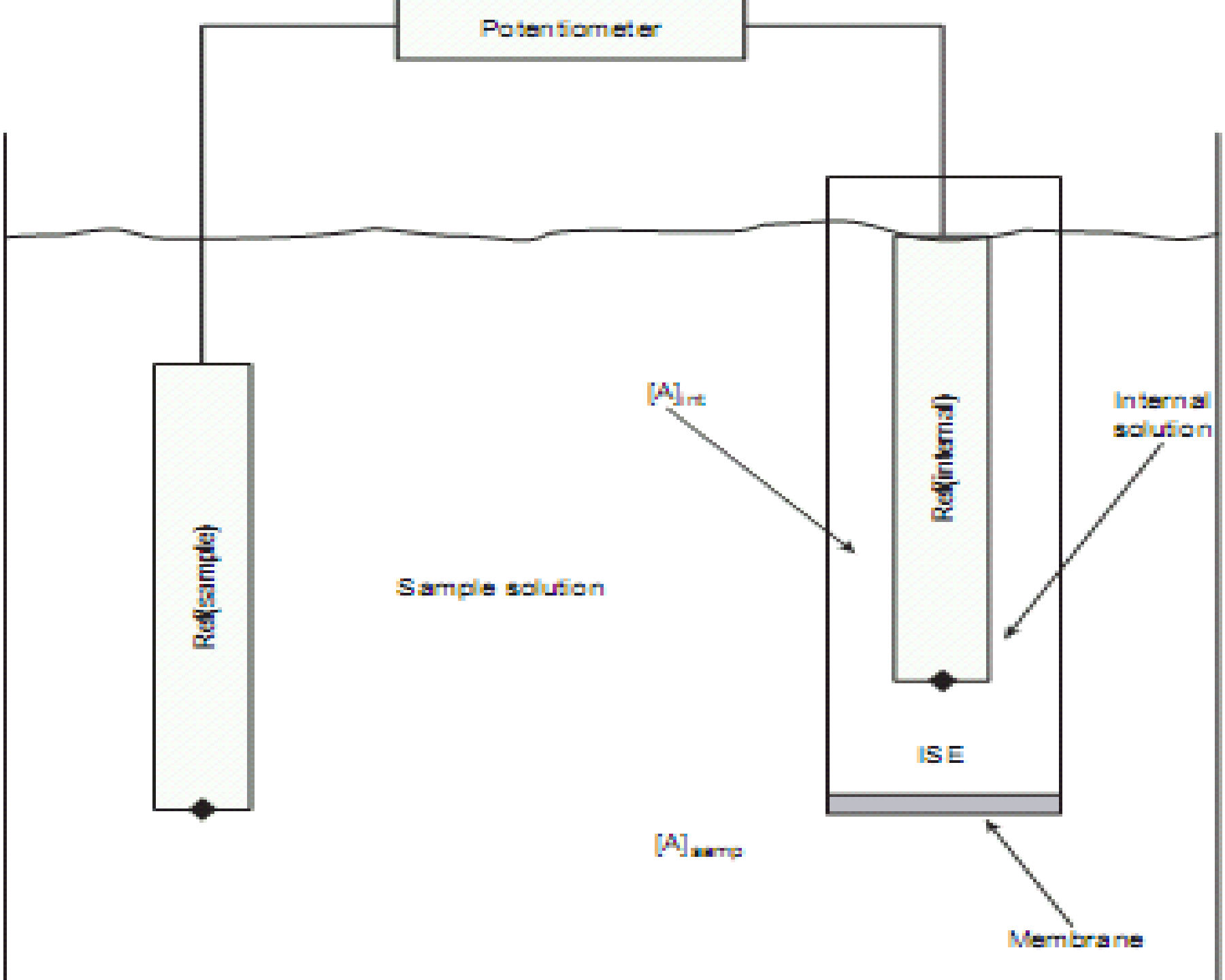
1. Elektroda Logam
2. Elektroda Membran

Elektroda indikator membran digunakan untuk menentukan pH dengan mengukur perbedaan potensial diantara larutan pembanding yang keasamannya tetap dengan larutan yang dianalisis

pHmeter

pHmeter adalah elektroda membran unruk mengukur pH.

pHmeter terdiri atas Elektroda kalomel (SCE) dan elektroda gelas, atau gabungan dari keduanya


Potentiometer
Ref(sample)
Sample solution
[A]int
Ref(internal)
Internal solution
ISE
[A]samp
Membrane

Persamaan:

$$E_{mem} = E_{asym} - \frac{RT}{zF} \ln \frac{[A]_{int}}{[A]_{samp}} \qquad 11.7$$

where $[A]_{samp}$ and $[A]_{int}$ are the concentrations of analyte in the sample and the internal solution, respectively, and z is the analyte's charge. Ideally, E_{mem} should be zero when the concentrations of analyte on both sides of the membrane are equal. The term E_{asym}, which is called an **asymmetry potential**, accounts for the fact that the membrane potential is usually not zero under these conditions.

Substituting equation 11.7 into equation 11.6, assuming a temperature of 25 °C and rearranging gives

$$E_{cell} = K + \frac{0.05916}{z} \log[A]_{samp} \qquad 11.8$$

where K is a constant accounting for the potentials of the reference electrodes, any liquid junction potentials, the asymmetry potential, and the concentration of analyte in the internal solution. Equation 11.8 is a general equation, and applies to all types of ion-selective electrodes.