#### **DO measurement.**



E *i* M A S Institut Alam Sekitar Malaysia Environment Institute of Malaysia

# Dissolved oxygen in waters.

♦ Aquatic organisms uses DO for metabolisme. Carbon + oxygen → energy + CO2

- Major sources of DO in waters comes from atmospheric oxygen diffusion into water and photosynthesis.
- High oxygen increases overall aquatic production as it promotes metabolism.



Oxygen sensitive membrane electrode are composed

- 1. 2 solid metal as anode & cathode,
- 2. contacted with electrolyte (KCI)
- 3. separated by a selective membrane.

Oxygen permeable PE membrane protects sensing elements, as a diffusion barrier against impurities.



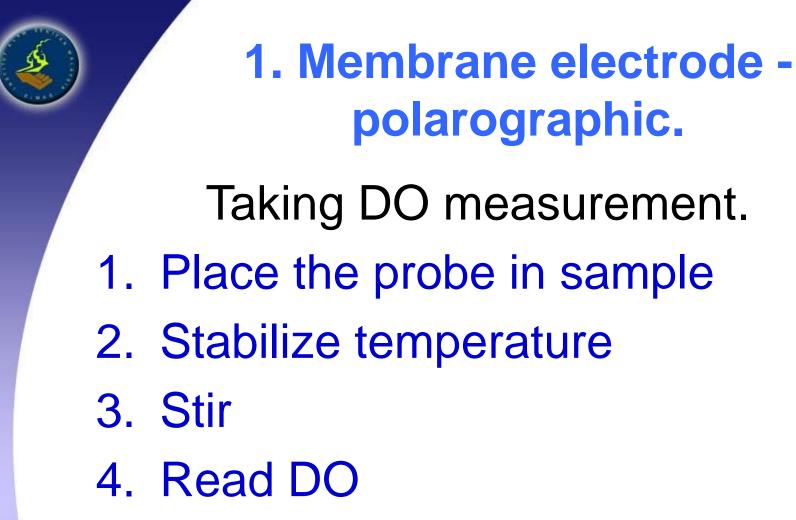
**Factors affecting DO measurement.** 

- 1. Temperature ( ~ 3% per  $^{\circ}C$ )
- 2. Sample Stirring
- 3. Membrane Fouling
- 4. Sample Salinity
- 5. Barometric Pressure (air only)



### **Calibration of DO measurement.**

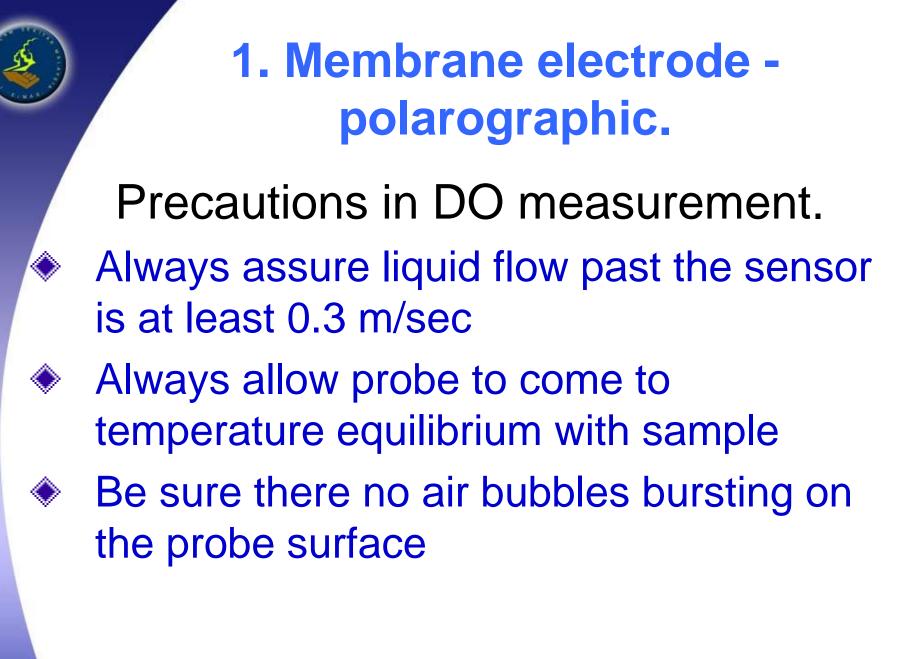
- should be performed at least once a day, more often is recommended.
- Calibration via air saturation calibration.
- can be disturbed by physical shock, touching or fouling the membrane or drying out of the electrolyte.





Precautions in DO measurement.

- Change membrane every 2-4 weeks depending on application
- Make sure the membrane is smooth and tight
- Wait at least 15 minutes after the meter is turned on to calibrate or measure
  - Leave instrument on if time between measurement is short



### **DO measurement.**



E *i* M A S Institut Alam Sekitar Malaysia Environment Institute of Malaysia