










ELECTRIC EBULLIOMETER CALCULATION AFTER REPAIR

-  To determine the value of the Factor X to be subtracted from the boiling point of water when using only the **black lines** on the calculating slide rule or dial:
 -  Boil water and note the boiling point
 -  Boil a known standard or sample with predetermined alcohol standard and note the boiling point.
 -  On the calculating dial, set the % alcohol of known standard to the observed boiling point.
 -  Compare the observed boiling point of water with the 0.00% alcohol and note the difference.
 -  The difference between the observed boiling point of water and the 0.00% alcohol value is the Factor X.
 -  To use the **red lines** on the dial, just note the value of the red line corresponding to the observed boiling point of water when using the standard solution values as a reference to set the dial. This number will be the value of that correlation for future determinations.
 -  This value will need to be determined whenever the heating cartridge is replaced or any physical changes or repair are made to your electric ebulliometer.
 -  The following is an example:
 - Boiling point Water = 99.8°C
 - Boiling point 11.4% wine standard = 91.7°C

Set the dial to 11.4% alcohol at 91.7°

Notice that the at 0% alcohol the temperature value should be 100.03°C.

Since the observed boiling point of water is actually 99.8°C calculate the difference by subtracting the actual from the theoretical for a value (Factor X).

For this example Factor X = $100.03^{\circ} - 99.8^{\circ}$ for a value of +0.23°. For each time the boiling point of water is determined, add 0.23° to the boiling point of water observed.

To match this factor and to facilitate easier calculations by using the red marks on the dial, note that the corresponding red mark is +2.25. Just set the boiling point of water observed to the +2.25 red mark and the factor value will be automatically integrated for accurate determination of wine sample % alcohol.