Electroscope

Metal Vane

EM1810-001

Description:

The Metal Vane Electroscope is similar in operation to the standard Gold Leaf type of electroscope but, instead of a very thin and fragile leaf of gold deflecting when an electrostatic charge is detected, a light and sensitive aluminium vane rotates on its needle pivots inside a small frame.

This type of electroscope is far more robust than the Gold Leaf type and the sensitivity and performance is similar. During export, it is difficult to guarantee that the gold leaf will not break from the electroscope terminal. If the gold leaf is broken, although spare leaves might be supplied, it is quite a difficult job to replace it.

The whole electroscope is housed in a metal (shielded) case with an earthing socket to prevent electrostatic charge from appearing on the case and perhaps causing errors in measurement.

The housing contains glass viewing panels front and rear with one panel removable. The panels are to prevent tampering with the vane and also to prevent air currents from causing errors in readings. The removable panel permits the insertion of Radioactive Sources and other devices into the case as required for some experiments.

Length: 95mm	Width: 58mm	Height: 106mm	Weight: 190g

Note:

To prevent the removable glass panel from easily falling out of the housing, the edge of the glass catches on the slot in the top plastic moulding. To remove the glass panel, it must be first centralised before sliding it through the slot in the moulding.

The vane moves close to a small scale with a projection at each 10^{o} interval. This is used to compare the vane deflections and thus to compare electrostatic charges. The instrument is otherwise used the same as a normal gold leaf electroscope.

NOTE: For an electroscope to perform properly it must be:

- CLEAN: Free of all dirt and dust both inside and out.
- DRY: Free of all moisture. If the housing is moist, the charge will leak away and will not remain on the vane assembly.
- SENSITIVE: If the vane has been bent or damaged, or if the pivots are too loose or too tight, the electroscope will lose sensitivity and perhaps will not deflect at all.

The two needle pivots are held in place by bronze spring wires which wedge the needle across a hole. The needle pivots on each side are held quite tightly, but if the back of a needle is held with a small pair of pliers, can be slid back and forth through the wire clamp. For best sensitivity, the two needles must be pressed inwards to hold the vane pivot firmly and then one needle pulled back SLIGHTLY so that the vane can swing freely.

The vane should be very straight. If the vane is curved it might not hang straight and might not swing correctly. When discharged, the vane should hang vertical and parallel to the support blade but not press against it.

Designed and manufactured in Australia