

# Polarography

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→ One of voltametric method of analysis

→ It consist of group of electroanalytical methods which are based upon the potential current behaviour of a polarisable electrode in solution being analysed.

Used for determination of electroactive substances in the sub-part per millirange.

$10^{-8}$  M & 0.5 ml ~~amount~~ amount.

\* In polarography a current voltage relationship is obtained with an electrolysis cell. where one of the electrode is microelectrode, usually a dropping mercury electrode (DME) which is a working electrode.

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It is made up of some inert metal i.e. platinum, gold or mercury.

Reference electrode is saturated calomel electrode (SCE)

~~DME~~ → In polarography ~~polanogro~~ polarisable electrode

is DME. Mercury cannot be made more +ve than about +0.25V against SCE. because of the easiness of its

anodic solution. Mercury due to its high over-voltage for hydrogen, can be utilized as far as -1.8V in acid & -2.3V in basic media.

Electrochemical method where current voltage curves obtained at the surface of microelectrodes are studied.

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Dropping Mercury Electrode  
(DME)

→ Method is used for the analysis of electro-reducible or oxidizable metal, ion or organic substance (electroactive species)

→ One of the electrode is polarizable microelectrode (DME) while the other is reference non-polarizable electrode

→ DME is the cathode  
(attached to the -ve pole of the voltage supply)

→ on applying the voltage, electroactive species will move towards DME, electron transfer occurs & current flows.

→ The produced current is proportional to concentration of the electroactive species

