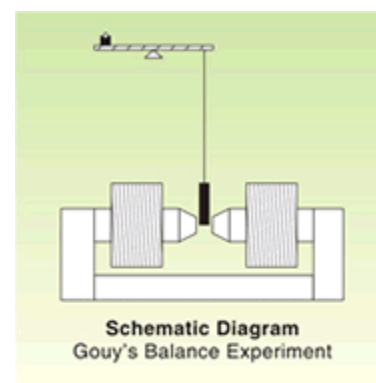


Apparatus for Measurement of Susceptibility of Paramagnetic Solids by Gouy's Method

In the Gouy's method of susceptibility measurement, the solid sample in the form of a long cylinder (area of cross section A) is hung from the pan of a balance and is placed such that one end of the sample is between the pole-pieces of the magnet (field H) and the other one is outside the field. The force exerted on the sample by the inhomogeneous magnetic field is obtained by measuring the apparent change (Δm) in the mass of the sample. The susceptibility c is given by

$$c = 2\Delta m / AH^2$$

If the sample is in the form of powder, it is filled in a long nonmagnetic tube which is then suspended from the pan of the balance.



Description of the experimental setup

a) Scientific Balance, KSB-07

Capacity	200 gms
Sensitivity	1/10 mg. by vernier
Beam	Hard Bronze/ Brass
Arrestment	Circular, falling away type
Air Damping	Very quick and positive, beam coming to rest in 2-3 sec
Chainomatic Device	A gold plated chain is suspended from the beam with its other end screwed on the rotating drum on which a scale graduated from 0 to 10 div each division representing 1mg is installed. By the movement of this scale before a vernier, reading upto 1/10th mg is taken

b) Sample in the form of a long rod

Set of 4 samples, 2 each of Ebonite and wood

c) Electromagnet, EMU-75T

Pole Pieces	75mm tapered to 25mm
Mag. Field	20KG at 6mm airgap
Energising Coils	Two of approx. 13W each
Power	0-90Vdc, 3A, for coils in series 0-45Vdc, 6A, for coils in parallel

d) Constant Current Power Supply, DPS-175

e) Gaussmeter, DGM-202 or DGM-102

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