

GMX-02

Gouy's Method

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 χ is given by

$$\chi = 2\Delta mg/AH^2$$

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.

The set up consists of the following:

(a) Digital Balance, CA-44

Capacity : 40gms
Readability : 0.0001gms
Repeatability : (+/-) 0.1mg
Linearity : (+/-) 0.2mg
Pan Size : 80mm

Standard bidirectional RS-232 interface
Complete with weigh below hook
feature suitable for GMX-01 measurement

(b) Sample in the form of a long rod: Aluminium sample and Glass Tube

(c) Electromagnet, Model EMU-75T

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

(d) Constant Current Power Supply, Model DPS-175
(specifications as per datasheet)

(e) Gaussmeter, Model DGM-202 (specifications as per datasheet)

(f) GMX-02 Trolley, Model GMX-TR2

The experiment is complete in all respect.

