8. DETERMINATION OF SPECIFIC GRAVITY OF CEMENT.
(IS : 2720 – Part – 3)

Object: To determine the specific gravity of cement using Le Chatelier Flask or Spcefic Gravity Bottle.

Apparatus:

a) Le Chatelier Flask or Specific Gravity Bottle – 100 ml capacity.

b) Balance capable of weighing accurately upto 0.1gm.

Procedure:

Weigh a clean and dry Le Chatelier Flask or Specific Gravity Bottle with its stopper (W1). Place a sample of cement upto half of the flask (about 50 gm) and weight with its stopper (W2). Add kerosene (polar liquid) to cement in flask till it is about half full. Mix thoroughly with glass rod to remove entrapped air. Continue stirring and add more kerosene till it is flush with the graduated mark. Dry the outside and weigh (W3). Entrapped air may be removed by vacuum pump, if available. Empty the flask, clean it refills with clean kerosene flush with the graduated mark wipe dry the outside and weigh (W4).

Calculations:

$$\text{Specific gravity} = \frac{(W2 - W1)}{(W2 - W1) - (W3 - W4) \times 0.79}$$

Where W1 = weight of empty flask.
W2 = weight of flask + cement.
W3 = weight of flask + cement + kerosene.
W4 = weight of flask + kerosene.
0.79= specific gravity of kerosene.

Limit: Specific gravity of cement = 3.15 g/cc .