

Class X

EXPERIMENT No: 3

AIM: To study the comparative cleansing capacity of a sample of soap in soft and hard water.

Materials Required : Distilled water (soft water), under ground water (hard water, soap cake, digital balance, two beakers (100 ml), two glass rods, two test tube with test tube stand. a measuring scale & measuring cylinder (50 ml).

Procedure :

1. Label the two beakers A and B.
2. Take 20 ml of distilled water in beaker A and put 50 ml of hard water in B.
3. Weigh 1 g of soap and put it in each beaker.
4. Stir the content of both beakers with separate glass rods.
5. Take the two test tubes and place them in a test tube stand and label soap them I and II.
6. Pour 3 ml of above prepared soap solution of beaker A and B in the two test tubes in the stand.
7. Take in the test tube I and II and shake them ten times by placing them on its mouth.
8. Foam or lather will form by shaking the test tubes (two minutes each.)
9. Measure the length of the lather produced immediately by using measuring cylinder and record observations:

Observations :

- a. Volume of soft and hard water taken in beaker A and B = ml.
- b. Mass of the soap put in each beaker = g.
- c. Volume of the soap solution taken in test tube I and II = ml.

S. No.	Water take	Test tube reading		Form/lather Produced (cm)
		Initial length (cm)	Final length (cm)	
1.	Soft Water			
2.	Hard Water			

1. A rich lather is produced in test tube I containing soft water.
2. A sticky scum is produced in test tube II containing hard water.

Result : For cleaning purpose the foam or lather needs to be produced should be more, thus soft water is suitable for washing.

Precautions :

1. Always use distilled water as soft water.
2. Use same soap sample for both water.
3. Hard water if not available can be prepared by dissolving 5 g of calcium chloride or magnesium chloride in the foam produced.
4. Measure the length of the foam produced immediately.