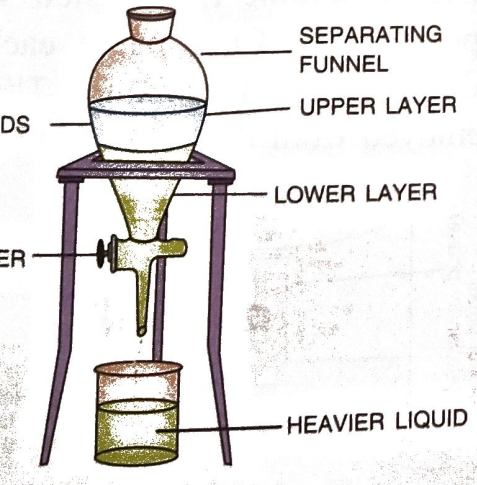
hod is also used in diagnostic
r testing blood and urine.

n of liquid-liquid mixtures

arating funnel : It is a simple
o separate the components of
immiscible mixture, in which
ifferent densities.

: The mixture of kerosene oil
laced in a separating funnel and
stand for sometime. The
rm two clear layers. Water being
the lower layer and kerosene oil
orms the upper layer. When the
funnel is opened, the heavier
out slowly and is collected in a
pper is closed when the lower
y removed from the funnel. In
wo liquids kerosene and water

f carbon tetrachloride and water
arated by this method in which
e upper layer.



***paration of immiscible liquids
ing separating funnel***

which the liquids have different boiling points.

On heating the mixture in a distilling flask, the liquid with the lower boiling point converts into vapour first and then gets condensed and collected in a receiver. The temperature remains stationary till whole of that liquid distils over. The heating is now continued, the temperature rises and the second liquid starts vaporising at its boiling point, the vapours then get condensed and collected in another receiver.

Complete separation is possible only when the difference in boiling points of liquids is 30°C or more. If the difference is less than 30°C, a fractionating column is fitted over the distilling flask. This process is called **fractional distillation**. Water and alcohol are separated by this method, boiling point of alcohol is 78°C and that of water is 100°C. 95·5% pure alcohol is obtained by this method.

Petrol, kerosene, diesel etc. are obtained from crude petroleum oil in a similar way.

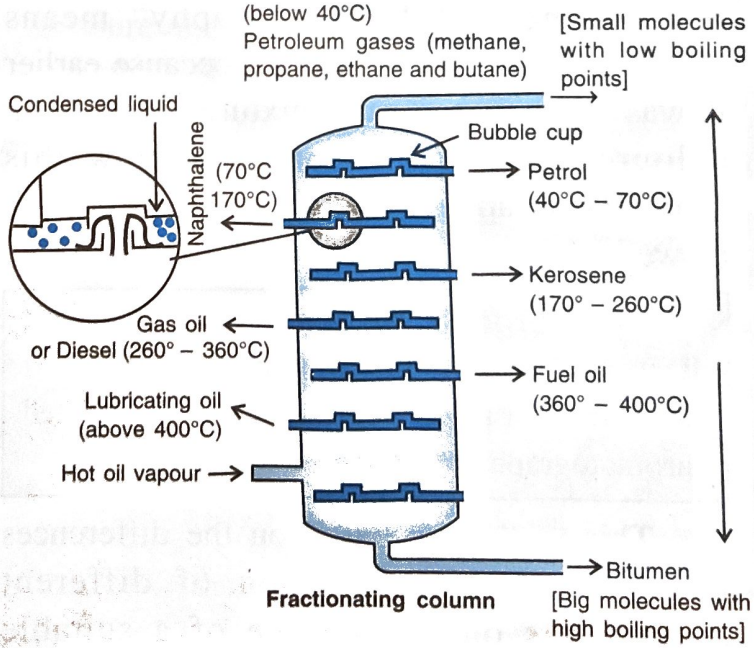


Fig. 3.10 Fractional distillation of petroleum

Fractional distillation is a process which involves distillation and collection of fractions of different liquids which are boiling at different temperatures.

Note : Homogeneous liquid-liquid mixtures are called *miscible* liquids.

- Liquids which dissolve in each other completely in all proportions are called miscible liquids. *Example* – alcohol is miscible with water.
- Liquids which do not dissolve in each other are called immiscible liquids. They are heterogeneous liquid-liquid mixtures. *Example* – oils are immiscible with water.

3. Chromatography : This is one of the latest techniques to separate the components of a mixture when all the components are very similar in their properties.

Example : Components of ink are separated by this method. Ink is a mixture of different dyes, which are separated by chromatography because some of the dyes are less soluble and some are more soluble in a solvent.

The name "chromatography" means colour writing. It is named so, because earlier it was used to separate mixtures containing coloured components only but now this technique is applied to colourless substances as well.

The process of separating different dissolved constituents of a mixture by their adsorption on an appropriate material is called chromatography.

This method is based on the differences in the rates of adsorption of different components on the surface of a suitable adsorbent.

Common adsorbents used are filter paper, silica gel, etc.

Common solvents used are water, ethyl alcohol, acetic acid, etc.

Principle involved in chromatography

Chromatography separates the components of a mixture on the basis of differences between two phases, one of which is stationary while the other is mobile.

The simplest type of chromatography is **"Paper chromatography".**

In this method, a special type of paper called chromatographic paper or Whatman filter paper is taken. A line is drawn with the pencil near the bottom edge of the paper. A drop of the mixture is placed on the filter paper above this line. The paper is then dipped in a solvent, taken in a beaker, such that the line drawn on the paper is above the level of the solvent.

The filter paper acts as "stationary phase" while the solvent acts as "mobile phase".

As the solvent rises on the paper, it takes along with it the constituent substances of the mixture. The component of the mixture which is more soluble rises faster. We see various spots on the filter paper each indicating a component of the mixture. The paper is then removed from the solvent and dried.

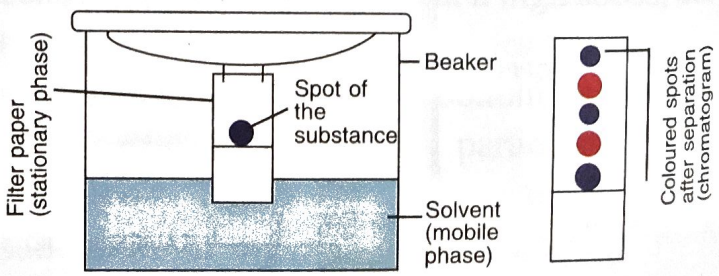


Fig. 3.13 Paper chromatography

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2020 AUGUST

DAY 240 · 126 WEEK 35

THURSDAY

33	August 2020						
Wk	M	T	W	T	F	S	S
31/36	31					1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	24	25	26	27	28	29	30

APPOINTMENT / MEETING

Class - VIII

Chap-3 Element, Compound and mixture Part-4

Date - 11.6.20

Subject - Chemistry

(1) What is fractional distillation method?

(2) What type of liquid can be separated by fractional distillation method?

(3) How can you get 95-96% alcohol by fractional distillation method?

(4) What do you understand by miscible and immiscible liquid?

(5) What is Chromatography?

(6) Give one eg. of Chromatography.

(7) What are the common absorbents and common solvents for Chromatography?

(8) What is the principle of Chromatography?

P.S.
11.6.20

NOTES