METHODS OF PREPARATION:- The lyophilic sols are prepared by simply dispersing +ve substance in a suitable in dispersion medium, for example starch canbe dispersed in water by adding its suspension in bromine water and stirring it some times stabilizers are added to make the solutions stable.

For the preparation of lyophobic solutions the following methods are used.

DISPERSION METHOD:- In this method the material in bulk is broken down to colloidal dimension. Some experimental methods are described below.

(I) MECHANICAL DISPERSION:-

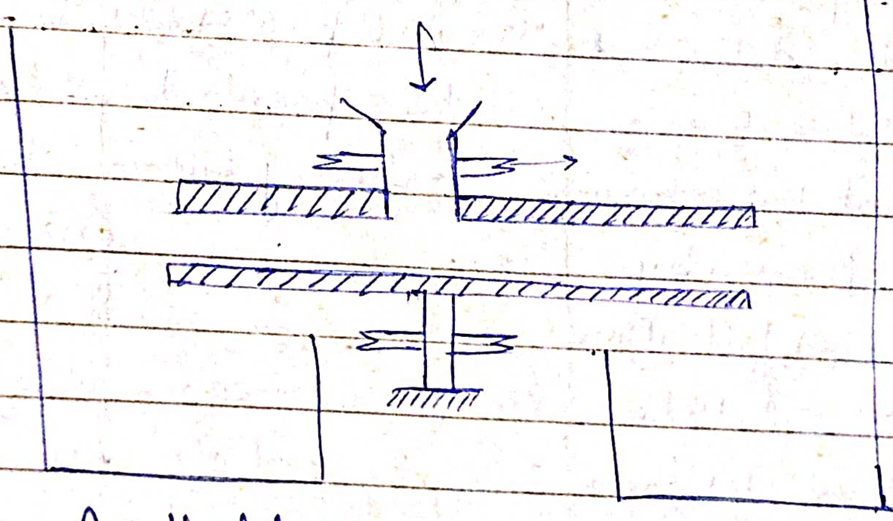

Fig:- A colloidal mill.

A critical colloidal mill is shown in the above figure. It consists of two metallic plates rotating at high speeds in the opposite directions. A slurry containing coares suspension of the material is placed between the rotating plates. Finer dispersion are obtained by using an inert diluent during grinding. The presence of inert diluents prevents the reunion of particles. For example, sulphar solution is prepared by using glucose as diluent.

... [illegible] ...

electrolyte [illegible]

for eg 1 — [illegible]

may be converted

the addition of

In these methods the

solution are allowed to

equal to the [illegible] of

Calculation of Kinetic Energy.

From kinetic gas equation, we know that

$$PV = \frac{1}{3} m.n.u^2 \quad \text{---} (1)$$

where P = Pressure ; V = Volume
m = Mass of one molecule.
n = No. of molecules
u = R.M.S. velocity.

We also know that for an ideal gas

$$PV = nRT \quad \text{---} (11)$$

From comparing eqn. (1) and (11), we have

$$\frac{1}{3} m.n.u^2 = n.R.T$$

or, $\frac{2}{3} \cdot \frac{1}{2} m.n.u^2 = n.RT$

or $\frac{2}{3} [K.E.] = nRT$

$\therefore$ $\boxed{K.E. = \frac{3}{2} nRT}$

where n = No. of moles
R = Universal gas constant
T = Temp. in Kelvine.

Value of R in different units :

For one mole of an ideal gas

$$PV = RT$$

or. $R = \frac{PV}{T}$

At N.T.P. $P = 1$ atmospheres
$V = 22.4$ liter
$T = 273^\circ K$

$\therefore$ $R = \frac{1 \times 22.4}{273}$ liter atmospheres per degree kelvine per mole

$= 0.082$,, ,, ,,

R in ergs

In C.G.S. System

$P = h \times D \times g = 76 \times 13.6 \times 981$ dynes

$V = 22400$ cc

$T = 273^\circ K$

$$\therefore R = \frac{76 \times 13.6 \times 981 \times 22400}{273} \text{ ergs}$$

$= 8.3 \times 10^7$ ergs perdegree permole.

R in Joules

$\because$ 10^7 ergs = 1 Joule.

$\therefore$ $R = 8.3$ Joules.

R in Calories

Work = Force × displacement
$= \frac{\text{Force}}{\text{area}} \times \text{area} \times \text{displacement}$
= Pressure × Change in volume
$= P \times V$