Phase Rule

Phase change Material - (PCM)

- Electronic Circuit — Heat absorber

Low Thermal expansion

Organic — paraffin — molecular.

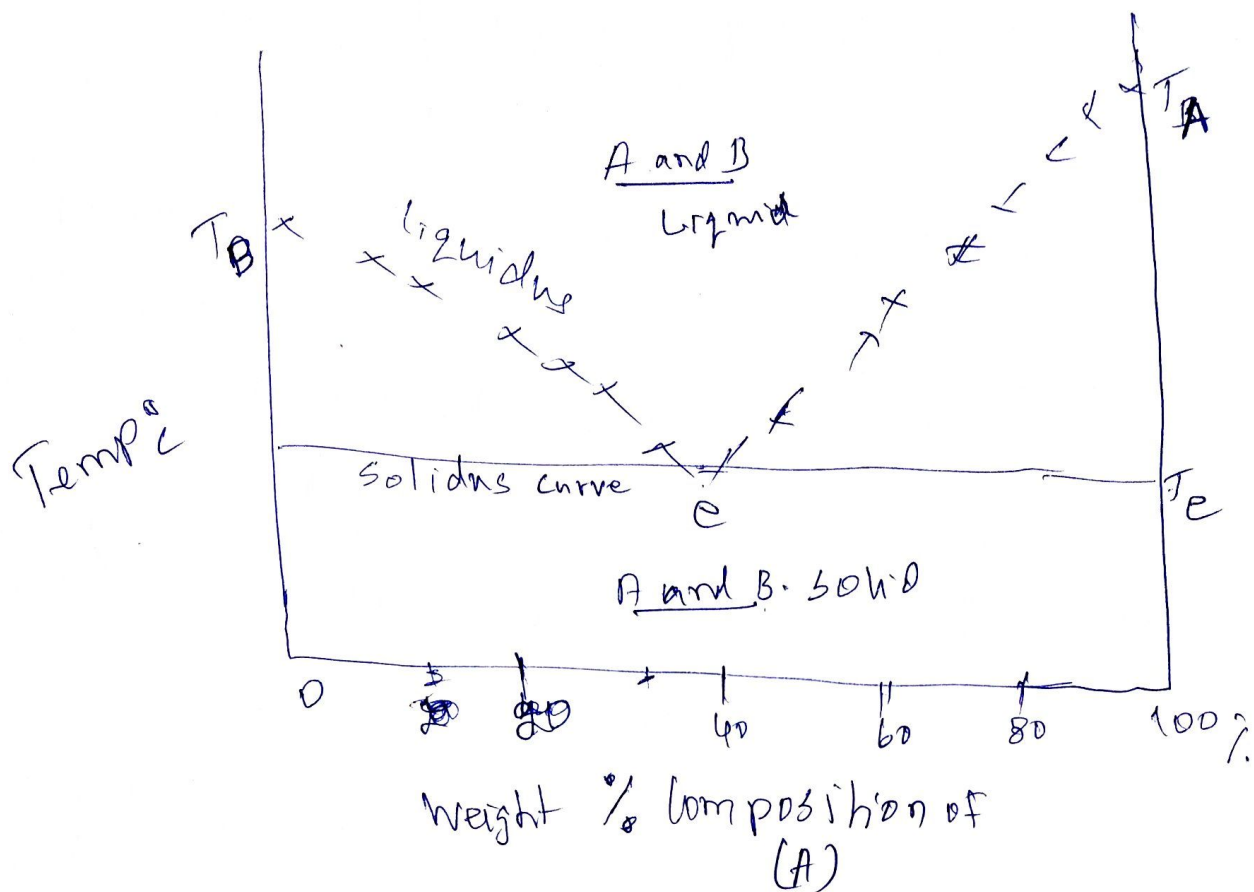— Fatty Acids / derivatives

Entectics

mixtures of 2 component {

Entectic mixture — lowest Freezing point of all the possible mixtures

Entectic point — the minimum/least freezing point attained

⊛ —next page

Phase Diagram

A and B
Liqmid

T_B

liquidus

solidus curve

Temp°c

e

A and B solid

T_A

Te

| 0 | | 20 | 40 | 60 | 80 | 100% |

weight % composition of
(A)

T_A - melting point of A

T_B -   "   "   B

e - Eutectic point / composition

T_e -   "   Temperature of the components

LaB - mixture = Naphthalene (A)
Biphenylene (B)

stearic Acid and mystic Acid

Freezing point of - A

$$\% \text{ of } A = \frac{\text{Weight of } A}{\text{wt of } A + \text{wt of } B}$$

① A - 1 gm

B - 0.1 gm

$$\% \text{ of } A = \frac{1}{1+0.1} \times 100 = 90.9\%$$

② A - 1 gm

B - 0.2 gm

$$\% \text{ of } A = \frac{1}{1+0.2} \times 100 = 83.3\%$$

✳ EACH COMPONENT HAS THE PROPERTY OF
LOWERING THE OTHER'S FREEZING POINT

colligative properties - $\begin{cases} \text{Elevation of Boiling Point} \\ \text{Lowering of freezing Point} \end{cases}$

Table-II

Freezing point of B

% ut A = ?

① wt of B = 1 gm

   wt of A = 0.1 gm

$$\% \text{ of } A = \frac{0.1}{1+0.1} \times 100 = 9.09\%$$

②   B = 1 gm

     A = 0.2 gm   % of A = 16.6%

% composition of 'A'

$$A = 1 gm \atop B = 1 gm \Big\} 50\%$$

Find. out Eutectic Temp and

Eutectic composition at the given

Binary System

S.No	wt of (A) gm	wt of B gm	% of A	Freezing point
1	1	0.2		60
2	1	0.4		57
3	1	0.6		54
4	1	0.8		52
5	1	1		50
1	0.2	1		52
2	0.4	1		48
3	0.6	1		47
4	0.8	1		46
5	1	1		