Table 2:

Sr. No.	Mixture at different concentrations	UV Peak
1	A(100%)	283, 206
2	B(100%)	285.5, 211.5
3	A (30%) +B (70%)	288.5, 214.5
4	A(40%) +B (60%)	291,228.5,210
5	A(50%) +B (50%)	288,237
6	A(60%) +B (40%)	256,209
7	A(70%) +B (30%)	287, 252.5

Table 3:

Sr. No.	*Mixture at different concentrations*	*Refractive Index*
1	A (100%)	1.448
2	B (100%)	1.439
3	A (30%) +B (70%)	1.467
4	A (40%) +B (60%)	1.462
5	A (50%) +B (50%)	1.443
6	A (60%) +B (40%)	1.438
7	A (70%) +B (30%)	1.452

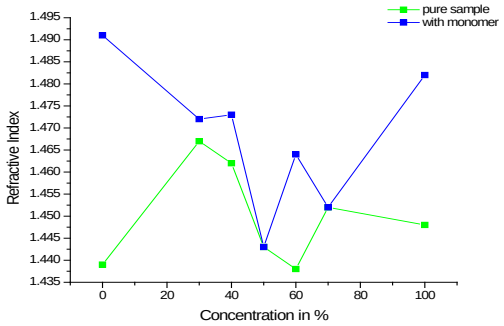

Figure 6: Graph of refractive index

The R.I measured by Abbe's Refractometer of all composite liquid crystals at various concentrations at room temperature is shown in Table 3

4. Result and Discussions

Table 4: Comparison of phase transition temperature for different technique observed

Sr. No.	*Mixtures at different Concentration.*	*FPSS*	*PMS*	*DSC*
1	A (100%)	77.5, 90, 92	76	77.91, 91.49
2	B (100%)	44.4	55	45.92,
3	A (30%) +B (70%)	57	57	44.32
4	A (40%) +B (60%)	48	48	43.71
5	A (50%) +B (50%)	45	45	46.47
6	A (60%) +B (40%)	47	53	42.36
7	A (70%) +B (30%)	67	67	42.38, 68.49

Comparison of observed transition temperatures for pure sample and different concentrations are shown in the Table 4 for three techniques which are in consistency. Some common bond formations are seen for all the concentration but additional bond of NO_2- nitro compound is observed in 7A+3B composite. High concentrations of nematic liquid crystal (3A+7B) have higher value Refractive index.

5. Conclusion

The liquid crystals (LC) mixtures at various concentrations were studied. The changes were found in phase transition temperature; some concentration has been extended by 2^0-4^0C and lower by 4^0-6^0 and confirmed by PMS and DSC/DTA. The mesomorphic phases are found in PMS study. By FTIR found the different functional groups like carboxylic acid, Aldehydes, Hydro halide, and Epoxide all over the mixtures. The occurrences new bonds were confirmed by FTIR and DTA analysis shows improvement in thermal behavior. UV-Vis spectrophotometer measures the amount of light absorbed at each wavelength of the UV and visible regions of the electromagnetic spectrum. By Refractive indices changes as a function of temperature and molar concentration made to understand the behaviour of the system by using Abbey's Refractometer. The changes in refractive index is due to change in concentration of composite liquid crystal which of can be used for optical applications.

6. Acknowledgment

We would like to acknowledge the help and encouragement given to us by Dr. Anuradha Mishra. Professor and Head, Department of Physics, University of Mumbai, Mumbai for her help and motivation.

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