X-ray diffraction studies on TGB phases

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In this paper, X-ray diffraction studies performed on mixtures of Liquid Crystals exhibiting twist grain boundary phases are presented. These phases are shown to exhibit TGBA, TGBC* phase and a new TGBH phase [1,2]. The X-ray diffraction patterns obtained for non oriented samples of CN30 (Figure 1) and CN70 (Figure 2) show three reflections in the small angle region a characteristic feature of hexagonal columnar structure. The diffraction peaks are sharp, of high intensity similar to that observed for smectic A phase. The correlation length is estimated. The diffuse scattering in the wide angle region indicates that there is no long range positional order with in the layers. The work is underway to analyze the intensity profile of the scattering pattern.

References

1. A. Khandelwal, M. Yadav & S.S. Bawa, Mol. Cryst. Liq. Cryst., **2008**. 489, 298.
2. A. Khandelwal, S.S. Bawa & M. Yadav, Mol. Cryst. Liq. Cryst., **2009**. 489, 01

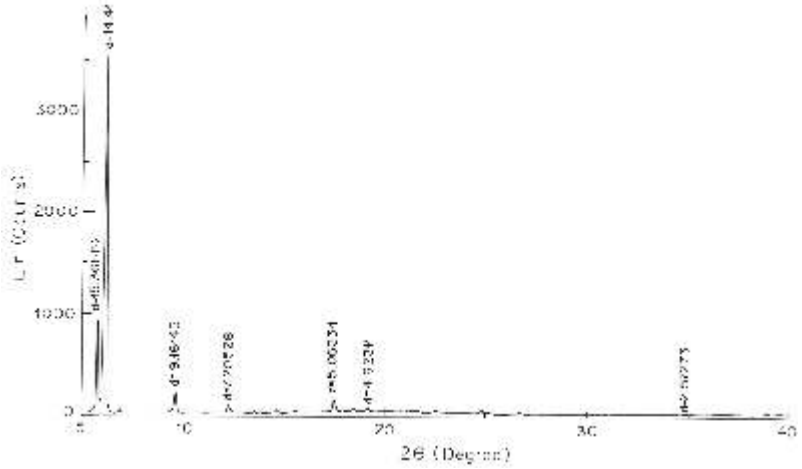
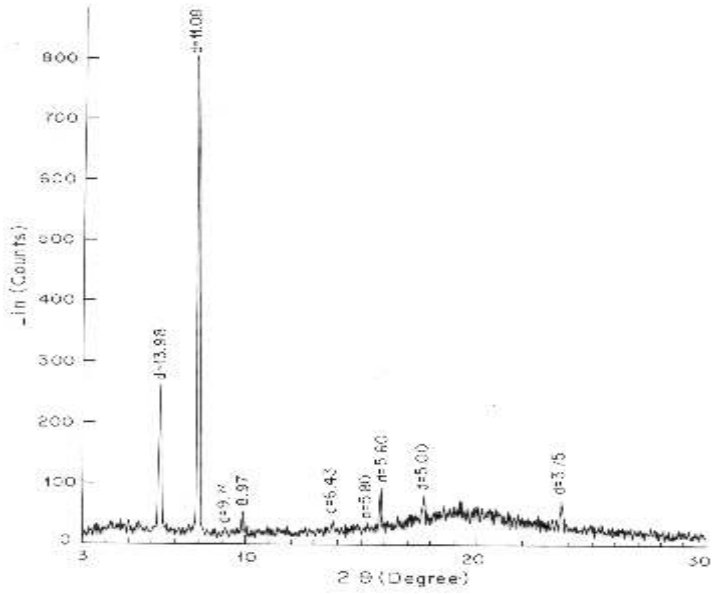


Figure 1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800
700
600
500
400
300
200
100
0
3
10
20
30
Intensity (Counts)
2 θ (Degree)

Figure 2