PB-50

Synthesis and property of hockey stick-shaped reactive mesogens with five-rings

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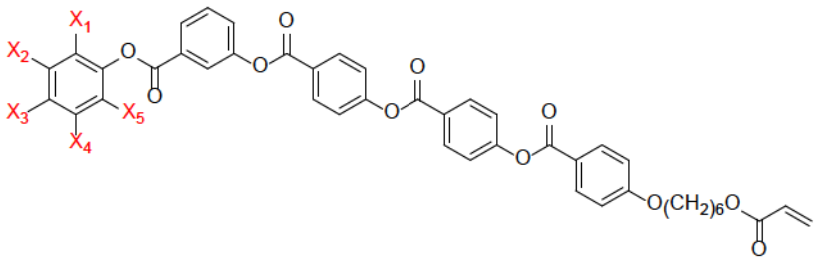
Response time is a drawback of LCD, which is not enough fast to ultrahigh quality moving picture. Hence, new method for surface control using reactive mesogen (RM) materials is proposed. The RMs are liquid crystalline monomers which carry polymerizable groups such as reactive acrylate end groups and can be polymerized with one another in the presence of photo-initiators and UV light to form a LC network. Recently, it has been reported that the pretilt angle can be controlled by polymerization of a RM mixture with a host LC or alignment agent in the presence of electric field.[1] If the pretilt angle can be adjusted optimally, threshold voltage can be decreased, and the response time is drastically improved.

In this study, RMs with hockey stick-shaped mesogen with all ester linkage and acrylate mono-functional terminal group have been synthesized and characterized. Obtained RMs were characterized by elemental analyzer, POM, and DSC. To fabricated VA-mode cell, the vertical alignment layer was prepared by photo-crosslinking of the RM mixture. It was found that RMs may improve the memorization of switching direction of LC molecules.



[Fig. 1] Molecular structure of hockey stick-shaped RMs□

References

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