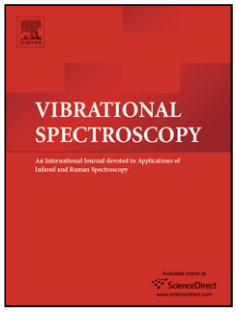

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FTIR Spectroscopic Studies of Polar Nematic Liquid Crystals in Various Molecular Arrangements

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Abstract

Polar nematic liquid crystals with four different molecular arrangements were studied using FTIR spectroscopy to understand how molecular interactions of polar liquid crystals affect IR band intensities. It was found that molecular associations formed between polar rigid parts of E7 molecules are responsible for the reduction of IR intensities of bands from the core parts of liquid crystals. The liquid crystal molecular associations become more significant as the thickness of liquid crystal increases.

Keywords: FTIR; liquid crystal; alignment; molecular association; band intensity

INTRODUCTION

A liquid crystal (LC) phase is an ordered fluid which is intermediate between a