

Role of Oxygen on Phase Behaviour of Benzylidene Aniline – A Comparative Study

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Four structurally related Schiff's base compounds are synthesized and their mesogenic properties are characterized by using Thermal Microscopy (TM) and Differential Scanning Calorimetry (DSC). The position of oxygen is varied from either sides of the bridging site, oxygen introduced on both sides and the oxygen is removed from the bridging site for the values of $n = 8$ and $m = 5$. The influence of oxygen atom to the extent of increase in thermal range, depression in melting temperature, elevation of clearing temperature is observed for all four compounds, viz. N (*p*-*n*-Octyloxy benzylidene) *p*-*n*-Pentyl aniline (8O.5), N (*p*-*n*-Octyl benzylidene) *p*-*n*-Pentyloxy aniline (8.O5), N (*p*-*n*-Octyloxy benzylidene) *p*-*n*-Pentyloxy aniline (8O.O5), and N (*p*-*n*-Octyl benzylidene) *p*-*n*-Pentyl aniline (8.5). The shift in the position of oxygen from the aldehyde to the aniline side and the removal of oxygen has a greater effect as they become room temperature liquids, whereas the oxygen on the aldehyde side and the oxygen on both sides of the rigid core moiety effect only the clearing temperatures. The results obtained are discussed in the light of the earlier data available on Schiff's base *nO.m* compounds.

Key words: Schiff's Base Compounds; Thermal Microscopy; Differential Scanning Calorimetry.