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Molecular Aggregation in Disodium Cromoglycate[1]
GAUTAM SINGH, D. AGRA-KOOIJMAN, Kent State University, P.J. COLLINGS, Swarthmore College, SATYENDRA KUMAR, Kent State University — Details of molecular aggregation in the mesophases of the anti-asthmatic drug disodium cromoglycate (DSCG) have been studied using x-ray synchrotron scattering. The results show two reflections, one at wide angles corresponding to $\pi - \pi$ stacking (3.32 Å) of molecules, and the other at small angles which is perpendicular to the direction of molecular stacking and corresponds to the distance between the molecular aggregates. The latter varies from 35 - 41 Å in the nematic (N) phase and 27 – 32 Å in the columnar (M) phase. The temperature evolution of the stack height, positional order correlations in the lateral direction, and orientation order parameter were determined in the N, M, and biphasic regions. The structure of the N and M phases and the nature of the molecular aggregation, together with their dependence on temperature and concentration, will be presented.

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