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## ORIENTATION OF ALKOXYBENZOIC ACIDS IN THEIR NEMATIC STATE

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While studying the polymerization of various monomers within mesophases of alkoxybenzoic acids we have observed the formation of order in the octyloxybenzoic acid in its nematic state. We would like to report here briefly our preliminary findings.

Figures 1b and 1a show typical low angle X-ray patterns for two alkoxybenzoic acids in a smectic and nematic state respectively. A remarkable pattern indicating persistence of organization in the nematic state is obtained when the acid is melted in a thin layer between the two mica windows. This finding is consistent with literature data on other nematic compounds. As pointed out by DeVries (1), a nematic structure preserving a "memory" of a smectic order does exist. Some nematic phases, especially when they derive from highly organized smectic arrangements (such as smectic C phases) have been found to consist of small, molecular clusters containing a few thousand molecules. The lamellar, tilted organization of molecules of the "C smectic phases" in each cluster seems to be preserved. They have been designated by DeVries as "cybotactic nematic phases" (1). It is probable that in the case of alkoxybenzoic acids we deal with cybotactic nematics. The individual cybotactic aggregates can be suitably oriented by a mica surface giving the low angle X-ray pattern illustrated in Figure 1a.

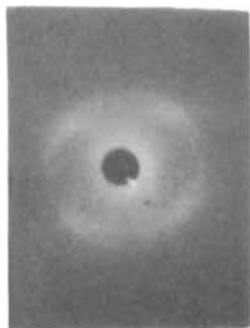


FIGURE 1a Typical X-ray Diffraction Photograph of a Nematic Phase of an Alkoxybenzoic Acid (Octyloxy B.A. at  $113^{\circ}\text{C}$ ).



Figure 1b Typical X-ray Diffraction Photograph of a Smectic Phase of an Alkoxybenzoic Acid (Dodecyloxy B.A. at  $98^{\circ}\text{C}$ ).

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#### REFERENCE

1. A. DeVries, Mol. Cryst. Liq. Cryst., 10, 31 (1974).