Title (en)

LIQUID CRYSTAL ALIGNMENT MATERIALS AND DEVICES

Title (de)

FLÜSSIGKRISTALLORIENTIERUNGSMATERIALIEN UND -VORRICHTUNGEN

Title (fr)

MATERIAUX ET DISPOSITIFS POUR ORIENTER DES CRISTAUX LIQUIDES

Publication

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Application

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Abstract (en)

[origin: WO9738349A1] An alignment layer for a liquid crystal device comprises or containing a polymer of structure (I) in which C represents a carbon atom, A is selected from H, Cl, F, CN, CO2R, OCOR, OR, where R is a straight chain or branched alkyl group having 1 to 15 carbon atoms, X and Y are independently selected from the same groups as A, subject to at least one of X and Y on each C atom being selected from F and H, B is a linking group comprising a single bond, or a chain of from 1 to 15 methylene groups in which one or more non-adjacent methylenes may be replaced by O, CO2, OCO, P is a photoactive group selected from cinnamate or anthracene groups substituted with at least one group selected from F, Cl, CN, CF3, OCF3, Br, wherein the interfacial energy of the polymer surface is within 3.0 ergs per square centimetre of the liquid crystal surface energy, and in the range 35 to 50 ergs per square centimetre. A method of providing an alignment layer on a surface of a liquid crystal cell wall includes the step of depositing a layer of a polymer containing at least one polymer as described above on the surface, followed by irradiation with polarised actinic light, and controlling the exposure time and/or intensity of light used to provide a selected value of pretilt in a liquid crystal placed in contact with the exposed layer. The alignment layer formed as above may be used to provide one or both alignment layers on the two walls of a liquid crystal cell. The cell may incorporate nematic, cholesteric, or a smectic liquid crystal material.

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