

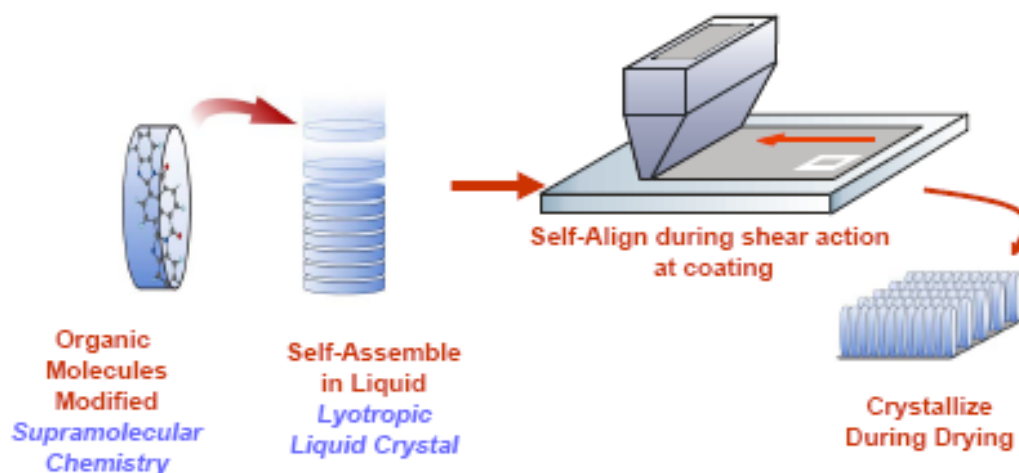
Application

Optical compensation of Liquid Crystal Displays

Technology

Crysoptix Ltd. has developed printable materials for manufacturing Thin Birefringent Films™ (TBF)* - retarders - via printing technology. The advanced technology is based on molecular engineering of organic materials and allows adjusting the chemical structure of low molecular weight components with printing techniques (including roll-to-roll slot die) to produce the coatable sub-micron TBF™ with the required three-dimensional refractive index and retardation.

Crysoptix TBF™ retarders are produced by coating on glass or plastic substrate of patented liquid self-assembling materials* with subsequent drying, wherein the liquid coating material is transformed into molecularly oriented nano-film.



Formation of molecular stacks in liquid phase and globalization of order by application method

High optical anisotropy and transparency of the resulting TBF™ make high-efficiency optical compensators for LCDs. The different newly engineered compounds enable production of a variety of TBF™ with negative A-plate, negative C-plate, and biaxial retardation functions.

*) PCT publication WO2007042788

Technology Advantages

- Coatable retarders are *less expensive* than existing stretched materials, and coating on a substrate which is already present in a display provides additional cost savings. For wider viewing angle in LCD TVs the cost of *stretching* grows with the size of the film (because of industrial difficulties in manufacturing highly uniform retardation plates over a large area), while the cost of *printing* actually decreases with the size of the film along with a baseline cost reduction.
- Additionally Crysoptix molecular engineering allows *3D refraction control* of the final coated film for *better optical performance*.

Product Features and Benefits

- Wide viewing angle
- Coatable on glass or plastic
- Thin - 200 times less for the same function → less material used and lower cost
- High thermal stability meets requirements for *in-cell* LCD application
- Printing on glass means less supporting substrates → lower cost
- Effective optical compensation of IPS and VA LCD modes** (the first choice for TV LCD)

***) Patents pending; S.Palto et al. Thin Coatable Birefringent Films and Their Application to VA and IPS Mode LCDs. SID'2007, 51-3 (2007).*

About Crysoptix Ltd.

Crysoptix Ltd. is a material development and manufacturing company working for LCD market. We are experts in coatable materials which produce birefringent films when coated on a substrate. Our main focus is on materials development for printable (wet coating) optical components for LCD screens, including TVs and monitors.

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