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**DISPLAY MANUFACTURING :  
SUBSTRATES AND COATINGS**

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Thursday, May 24 / 2:00 3:20 pm / Room 102

**Chair:**

Josef C. Lapp, Corning Incorporated, Corning, NY, U.S.A.

**Co-Chair:**

Peter A. Smith, Honeywell, Inc., Morristown, NJ, U.S.A.

**48.1: Behavior of LCD Panels During Bending (2:00)***S. Gulati, J. D. Helfinstine, T. Ono, J. C. Lapp  
Corning Incorporated, Corning, NY, U.S.A.*

When an LCD panel is subjected to pure bending, it behaves as a single sheet of twice the substrate thickness or as two independent substrates, depending on how the edges are held together. Well-bonded edges gives the panel ~ 2x the strength and 4x the stiffness compared to loosely bonded edges shown by both theory and experiment.

**48.2: The Chemical Durability of EAGLE XG in LCD Dry-Etch Processes (2:20)***R. A. Bellman, R. W. Davis, J. C. Lapp, R. M. Walton  
Corning Inc., Corning, NY, U.S.A.*

The chemical durability of EAGLE XG™, EAGLE2000, and 1737 glass in typical TFT dry-etch processes was compared. Active, dielectric, and metal films were etched with a resist mask. Glass surfaces were evaluated by dark-field microscopy, SEM/EDX, and AFM. The results show that the dry-etch durability is comparable for all three compositions.

**48.3: Development of Precision Patterning for LCD Color Filters (2:40)***B. Eyre, H. J. Kim,  
DuPont Imaging Technologies, Wilmington, DE, U.S.A.*

DuPont, in conjunction with industry leaders, has created a new manufacturing process to eliminate photolithography, which reduces process steps and cleanroom space, thereby providing sizable capital savings and greater reliability. Based on digital technology, the direct-precision patterning process eliminates photomasks for RGB, is highly scalable, and simplifies pattern change over.

**48.4: Flexible LCD Films by Plasma Alignment Method (3:00)***K-H. Liu, C-C. Liao, W-Y. Chou, H-L. Cheng, C-T. Ho,  
S-T. Lin, C-Y. Lee, H-C. Tang  
EOL/ITRI, Hsinchu, Taiwan, ROC*

A plasma-beam-irradiated PI-film non-contact alignment technology suitable for large area and roll-to-roll fabrication was used in flexible-LCD manufacturing. The pretilt angle and anchoring energy of LCs on a plasma-aligned PI surface is comparable to that of a rubbed-aligned PI surface. The optical performance of the plasma-aligned cell was superior to that of the rubbing cell under various bending conditions.

**BREAK (3:20–3:40)****AUTHOR INTERVIEWS (5:00–6:00)**