

ORGANIC MATERIALS FOR THE ELECTRONIC AND OPTOELECTRONIC INDUSTRIAL APPLICATION

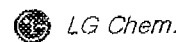
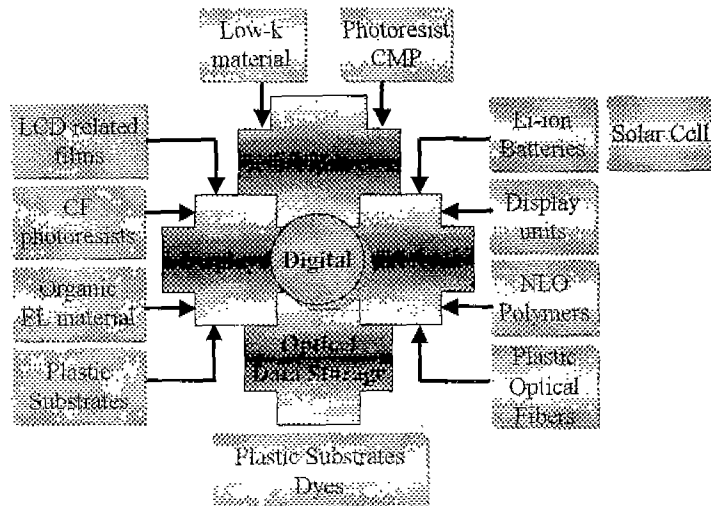
Sehwan Son

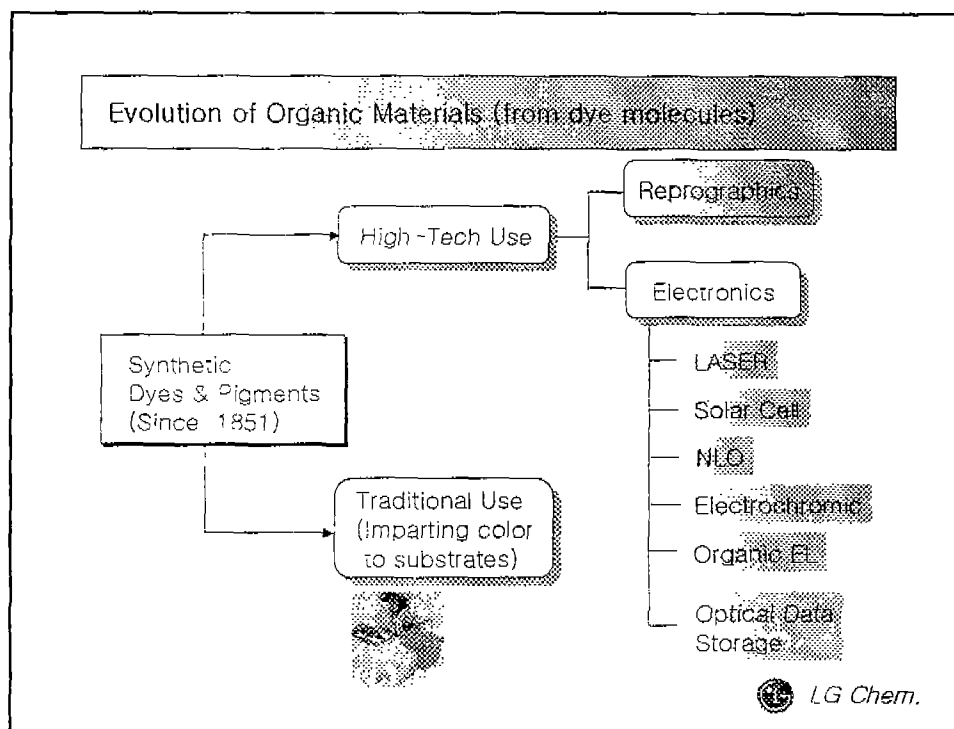
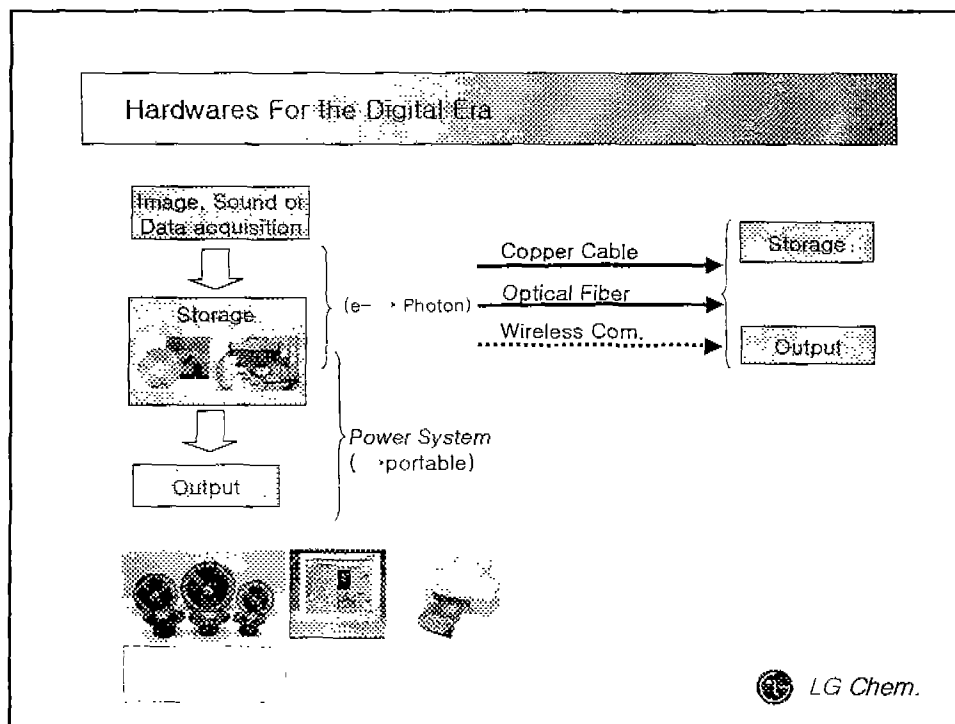
LG Chem.

Advanced Materials Research Institute

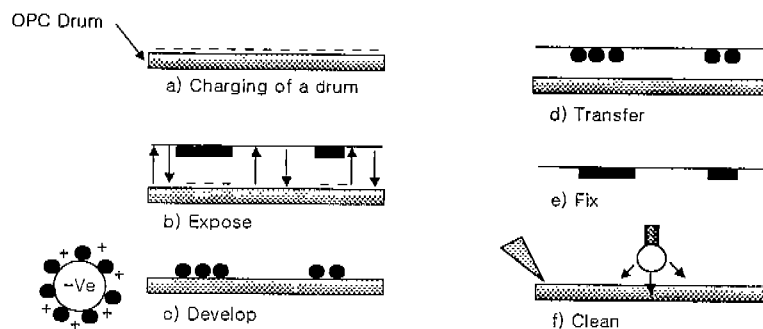



Materials for Electronic and Optoelectronic Devices



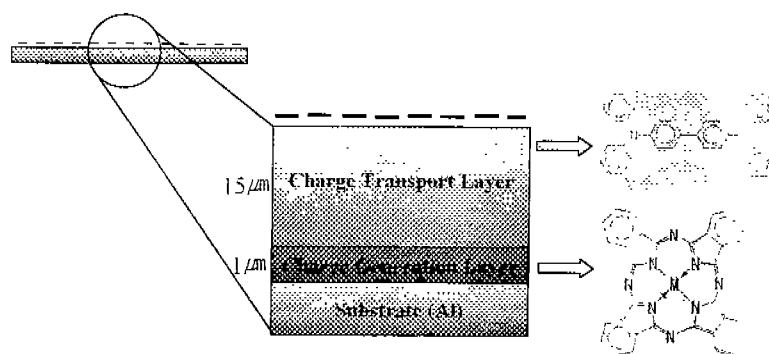


Copying Process




 LG Chem.

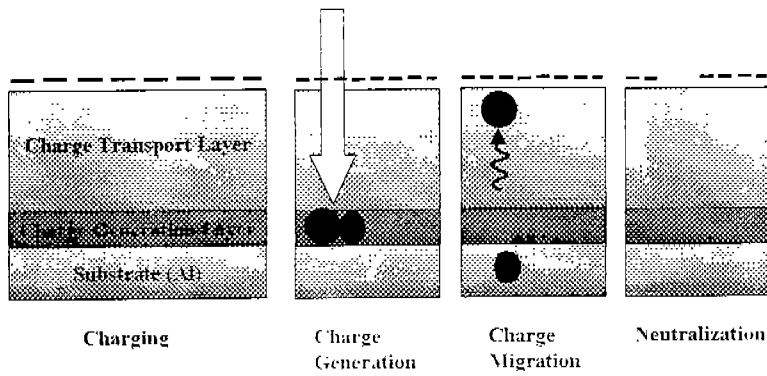
OPC (Organic Photo Conductor) Drum



Cross-sectional View of an OPC Drum

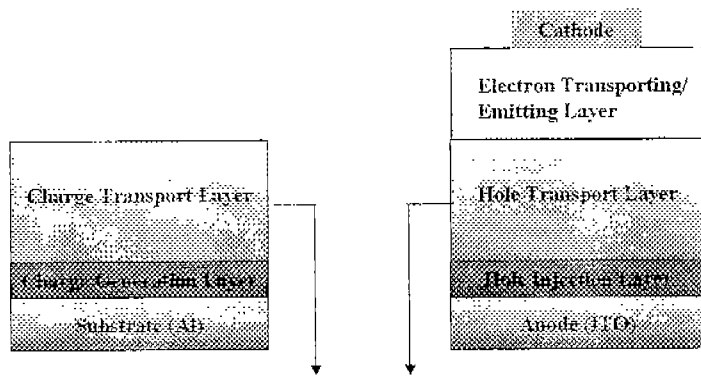
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Latent Image Formation



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OPC Drum vs. Organic EL Device



10^{-2} C/cm² of charges for 100,000 copies

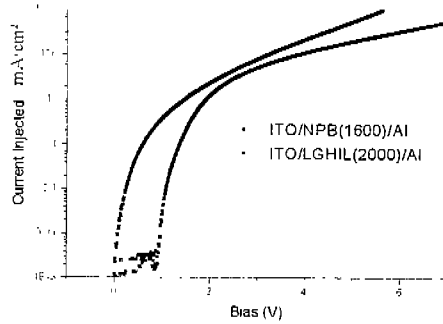


It takes only 10 seconds to pass 10^{-2} C/cm² of charges at 1 mA/cm² of current density

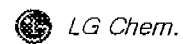
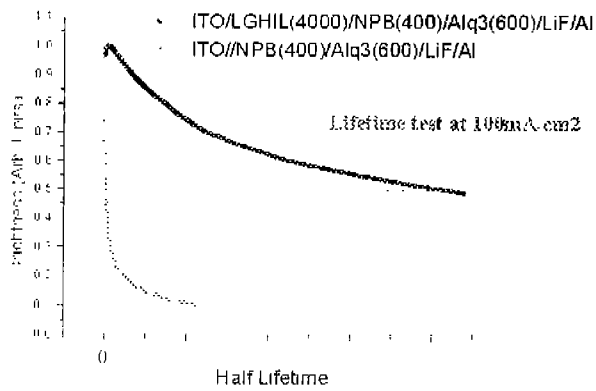
LG Chem.

Materials For OLED at LG Chem. (Hole Injecting Material)

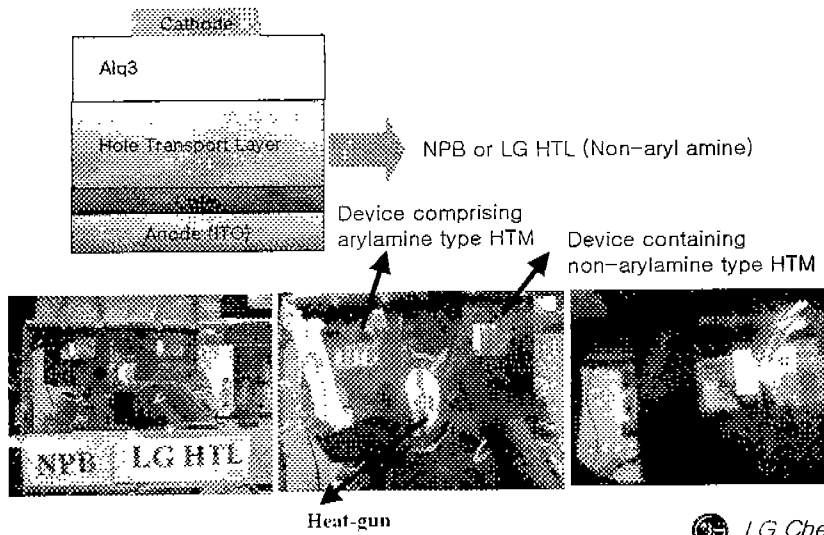
- Formation of ohmic contact with ITO



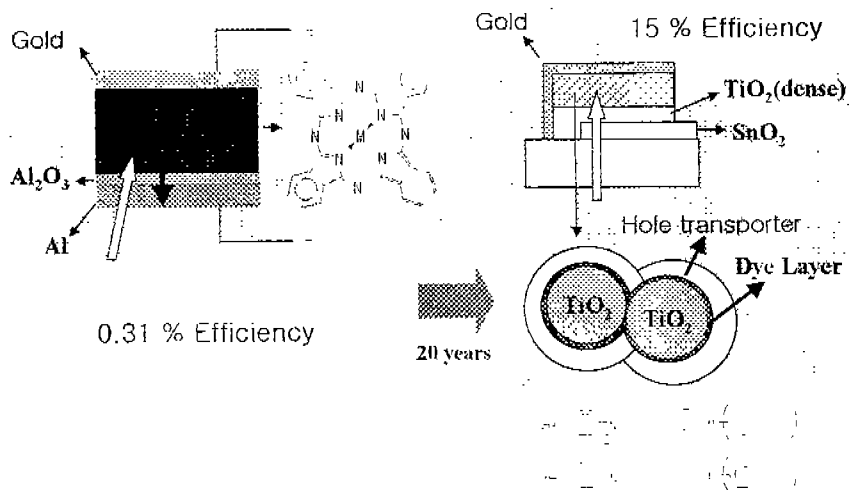
Materials For OLED at LG Chem. (Hole Injecting Material)

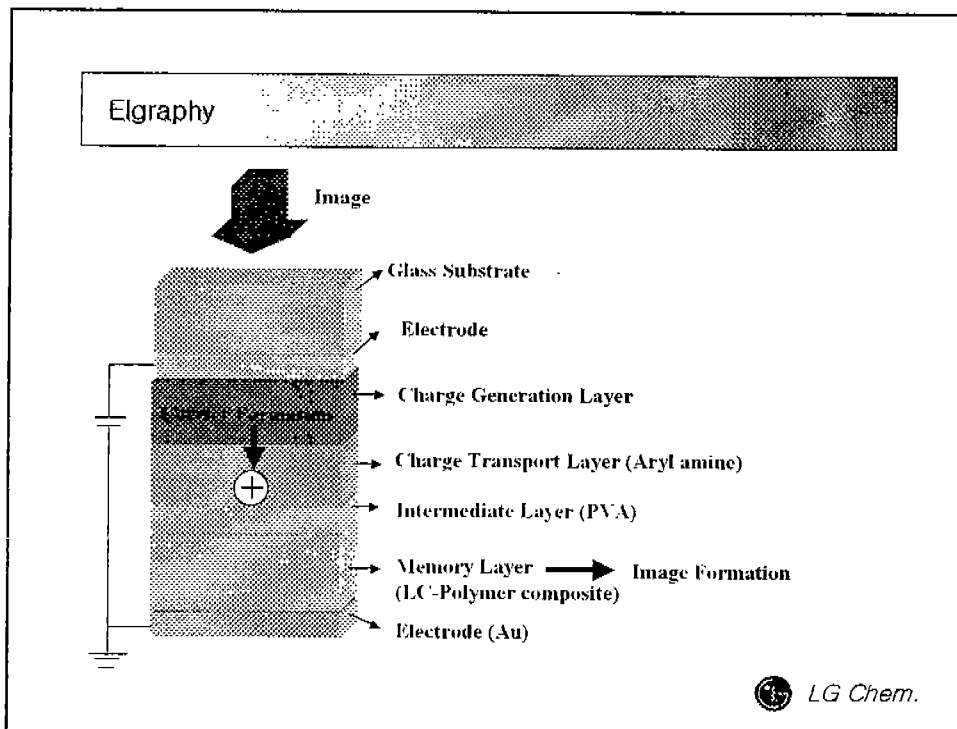
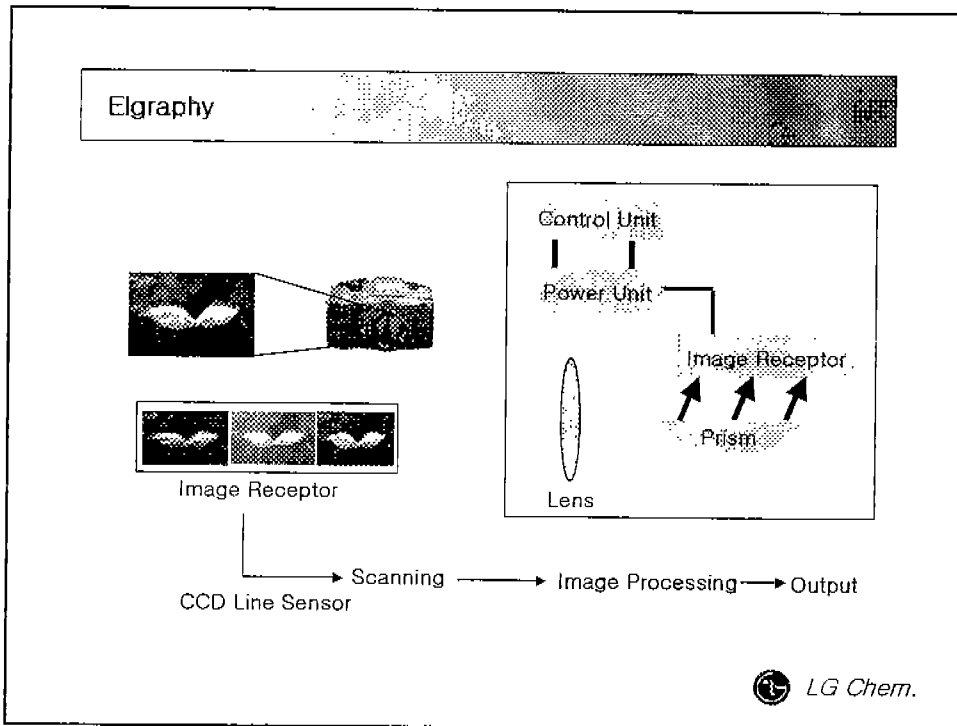


Materials For OLED at LG Chem. (Hole Transporting Material)




Solar Cell



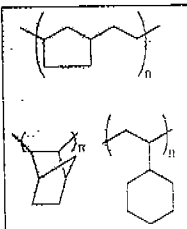
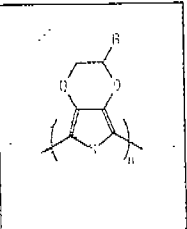



Elgraphy

Factors	Silver halide	Digital Camera	Elgraphy
Access Time	Several Hours	Minutes	Minutes
Process	Wet	Dry	Dry
Sensitivity	ISO 100	ISO 80	ISO 10-50
# of Pixels	18 million	6 million	50 million

 LG Chem.

Trends in the Development of Organic materials

Nonconjugated Polymers	Conjugated Polymers	Conjugated small molecules	Fluorinated Polymers
❖ Catalyst Chemistry	❖ Monomer Design	❖ Methodology ❖ Molecule Design	❖ Supercritical CO ₂
		<p>Complicated molecular structure</p> <p>Fine Tuning</p>	<p>Various fluorinated polymers</p>

 LG Chem.

Processing Methods of Organic Materials

Fiber Spinning

Screen Printing

Molding

Thermal Evaporation

Spin-coating

Ink-jet Printing

Dip-coating

Roll-coating

Doctor-blading

Thermal transfer

Summary

Organic Materials for
Electronic & Optoelectronic
Application

Structural Versatility

Processing Methods

Application Fields