Organic Electroluminescence Materials

Compounds for EL Research
- Vinyl Carbazoles
- Dichlorosilanes
- Intermediates
  - Diphenylamines
  - Triphenylamines
  - Arylamines
  - Aryl Halides
  - Naphthalenes & Anthracenes
  - Pyrenes
  - Fluorenes, Carbazoles & Dibenzothiophenes
  - Benzoazoles & Benzothiazoles
  - Quinolines
  - Phenanthrolines
  - Propanediones
  - Others
A great increase in demand for sleek, stylish, flat panel displays (FPD) has intensified research into improving current technology and developing cutting-edge next generation displays. Currently, the liquid crystal display (LCD) and the plasma display panel (PDP) are the mainstream technologies utilized for a variety of applications. Research into new technologies for the development of next generation displays has focused on the research and technical development of organic electroluminescence (EL) devices. In an EL device, fluorescent organic compounds are excited by the application of an electric field to obtain an emission of light. This area has been rapidly progressing ever since the report of a multilayer EL device in 1987. The organic EL device is expected to be the FPD device of the future, having features such as being a self-emitting device, high brightness, high efficiency, direct current low-voltage operation, and high-speed response. Today, some organic EL devices are beginning to be put into commercial use in mobile phones, in-vehicle displays, as well as other applications. The following is a view showing the frame format for a typical organic EL device.

Fig. Frame format of a typical organic EL device.

An organic EL device has a structure in which a transparent anode (ITO electrode), hole transport layer, emitter layer, and cathode (Mg, Al electrode) are sequentially stacked on a glass substrate, as shown above. The light emission occurs by a mechanism in which a hole is first injected toward the hole transport layer from the anode, then an electron is injected toward the emitter layer from the cathode. Subsequently, the hole and the electron recombine in the emitter layer to excite the emitter layer, which results in light emission during the return of the emitter layer to the ground state.

Various technological improvements are being made, with the goal of making the device more efficient. For example, a hole injection layer is inserted between the anode and the hole transport layer, in order to promote hole injection efficiency from the anode. In addition, an electron injection layer and an electron transport layer are inserted between the cathode and the emitter layer, in order to promote electron injection and transport efficiency. Furthermore, efforts to tune the emission wavelengths are being conducted through the use of doping dyes in the emitter layer.

In addition to the above mentioned low molecular weight compounds for use in organic EL devices, the use of polymers is also being heavily explored. Polymers are superior to low molecular weight compounds because they have better film-forming properties and more durability. Additional studies aimed at increasing the efficiency of light emission are being conducted by dispersing low-molecular weight compounds in polymer films. Listed below are our products intended for use as materials in polymeric EL devices.
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<table>
<thead>
<tr>
<th>Product Code</th>
<th>Quantity</th>
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<tr>
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<td>25g 500g</td>
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</table>

**Others**

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