Organic LED-OLED

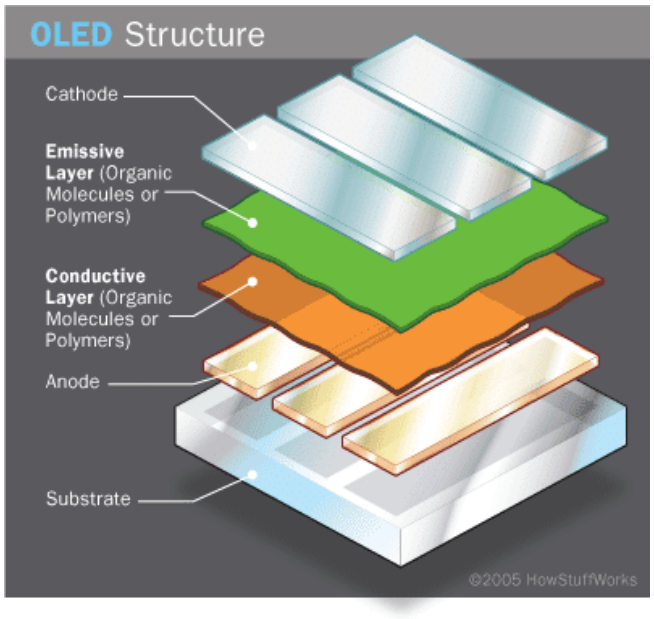
OLEDs are solid state devices composed of thin films of organic Molecules that is 100 to 500 Nano meters thick.

• They emits light with the application of electricity.

• They doesn't require any backlight. i.e., they are self-emitting.

• They are made from carbon and hydrogen

Structure & composition



It consist of

1. Substrate

Materials: Glass or plastic

2. Anode (Positive Electrode)

Function: It allows entry of positive charge carrier

3. Organic layers

Components

Hole transport layer (HTL)

Emission Layer (EL)

Electron Transport layer (ETL)

Function: HTL facilitates hole movement, EL Emits light, ETL facilitates electron movement.

4. Cathode (Negative electrode)

Function: It Injects electrons into the organic layers

Working Priciple

OLED Device consist of organic layers sandwiched between two electrodes, an anode and a cathode. When a voltage is applied across the anode and cathode.

Current flows from cathode to anode through the organic layers.

At the anode (positive electrode), positive charges (holes) are injected into the organic layers. Simultaneously, at the cathode (negative electrode), electrons are injected into the organic layers.

The injected holes and electrons move through the organic layers and also reach the emissive layer.in this layer holes and electrons recombine, releasing energy in the form of photons. The color of the emitted light is determined by the specific organic molecules or phosphorescent materials used in the emissive layer.

Electroluminescence in OLEDs is a continuous process that occurs as long as the electric current is applied.

Features

- Light weight and thin.
- Flexibility
- Low power consumption.
- High contrast, brighter and perfect display from all angles.

Applications

It is well suited in display technology, such as Displays in smart phones,TVs ,Laptops and other Electronic devices