

applications, the OLED device may be a passive-matrix display device or an active-matrix display device and, as described above may emit light through the flexible substrate **11** in a bottom-emitter configuration or through the rigid, curved encapsulating cover **21** in a top-emitter configuration.

In a preferred embodiment, the invention is employed in a device that includes Organic Light Emitting Diodes (OLEDs) which are composed of small molecule or polymeric OLEDs as disclosed in but not limited to U.S. Pat. No. 4,769,292, issued Sep. 6, 1988 to Tang et al., and U.S. Pat. No. 5,061,569, issued Oct. 29, 1991 to VanSlyke et al. Many combinations and variations of organic light emitting displays can be used to fabricate such a device.

The invention has been described in detail with particular reference to certain preferred embodiments thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention.

PARTS LIST

- 10 substrate
- 11 flexible substrate
- 12 electrode
- 14 organic layers
- 16 electrode
- 18 power source
- 20 cover
- 21 rigid, curved encapsulating cover
- 22 raised edge
- 23 inside edge
- 24 bottom edge
- 30 flexible substrate raised area
- 31 encapsulating cover raised area
- 40 adhesive
- 42 desiccant
- 44 opening
- 50 connecting wire
- 100 form flexible substrate step
- 105 flatten substrate step
- 110 form OLED layers step
- 115 form rigid curved cover step
- 120 conform substrate step
- 125 seal substrate to cover step

What is claimed is:

1. A method of manufacturing an OLED device with a curved light-emitting surface comprising:
  - a) forming a flexible substrate and providing the flexible substrate in a flat configuration;
  - b) forming one or more OLEDs having a first electrode, one or more layers of organic material, at least one of

which is light emitting formed over the first electrode, and a second electrode formed over the one or more layers of organic material, on the substrate;

- c) forming a rigid, curved, encapsulating cover;
- d) conforming the flexible substrate, electrodes, and one or more layers of organic material to the rigid, curved, encapsulating cover; and
- e) sealing the conformed flexible substrate, electrodes, and one or more layers of organic material to the rigid, curved, encapsulating cover.

2. The method of claim 1, wherein the rigid, curved encapsulating cover includes at least two opposing raised edges, and an outside edge of the flexible substrate is positioned adjacent to an inside surface of each raised edge.

3. The method of claim 2, wherein the rigid, curved encapsulating cover includes two pairs of opposing raised edges, and an outside edge of the flexible substrate is positioned adjacent to a corresponding surface of each raised edge.

4. The method of claim 2, wherein the rigid, curved encapsulating cover is sealed to the flexible substrate along the perimeter of a main surface of the flexible substrate and/or along the outside edge of the flexible substrate.

5. The method of claim 1, wherein the flexible substrate is conformed to the curved cover so that the OLEDs are on the concave side of the curved cover.

6. The method of claim 1, wherein the flexible substrate is conformed to the curved cover so that the OLEDs are on the convex side of the curved cover.

7. The method of claim 1, further including providing spacers located between the OLEDs and a main surface of the rigid, curved encapsulating cover to prevent the OLEDs from contacting the main surface of the encapsulating cover.

8. The method of claim 7, wherein the spacers comprise raised areas formed over the flexible substrate which project above the OLEDs, or raised areas formed over the main surface of the encapsulating cover.

9. The method of claim 7, wherein the spacers are formed separately and located over the OLEDs.

10. The method of claim 7, further including the step of providing an adhesive on the spacers.

11. The method of claim 1, wherein the flexible substrate is initially formed with a curved surface and subsequently compressed or tensioned to provide the flat configuration.

12. The method of claim 11, wherein the flexible substrate is initially formed with a curved surface that conforms to the rigid, curved encapsulating cover.

13. The method of claim 1, wherein the flexible substrate and/or cover comprises glass.

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