

Synthesis of Protective Paste for OLED Panel

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Abstract. Recently, organic light-emitting diodes (OLEDs) display is steadily developed and applies to the various field. It is suitable for the small display owing to having the many advantage better than LCD and PDP. In this paper, we propose the protective paste having the low moisture absorption, the high hardness and the heat stability.

Keywords: Panel glass, flexible display, organic light-emitting diodes(OLEDs)

1 Introduction

The basic structure of organic light-emitting diodes (OLEDs) was reported by Ching W. Tang and Steven Van Slyke at Eastman Kodak in 1987 [1]. OLEDs have many attractive features for display application. It is considered as one of the most popular display technology.

Recently, OLEDs are being fabricated on a glass substrate. By utilizing the flexibility of the substrate, displays of various forms can be fabricated on the substrate, including so-called flexible display[2]. The efficiency and lifetime of OLED devices have been improved dramatically[3]. They have high brightness, high efficiency, wide viewing angle, and quick response time[4].

The key point is how to protect OLEDs from moisture and oxygen. Therefore, it is important that OLEDs should be protected by the scratch, moisture and oxygen.

Our research proposes how to synthesize the binder with the protective film.

2 Our research

Figure 1 shows the structure of OLEDs. We propose the protective paste between the metal layer and the substrate. In the Table 1, our paste has the antistatic property, the hardness, the heat-resisting and the hygroscopicity.

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Table 1. Result showing the comparison of Ashahi.Co.

Spec	Unit	Ashahi.Co	Our proposed method
Antistatic property	Ω	10^{10}	$\sim 10^{10}$
Hardness	H	1H	3H
Heat-resisting	$^{\circ}\text{C}$	220	220
Hygroscopicity	%	0.5%	0.1%

The process to synthesis the paste consists of the three step. Firstly, the mesh which has the thickness in 50um is printed in the screen. Then, the panel is coated on a mother glass, which sizes 730*920. Secondly, the cell is cut in the shape of the diamond. Next, we contain it in the cartridge .The cartridge is cleaned in 6 clean line and is dried in 3 line.

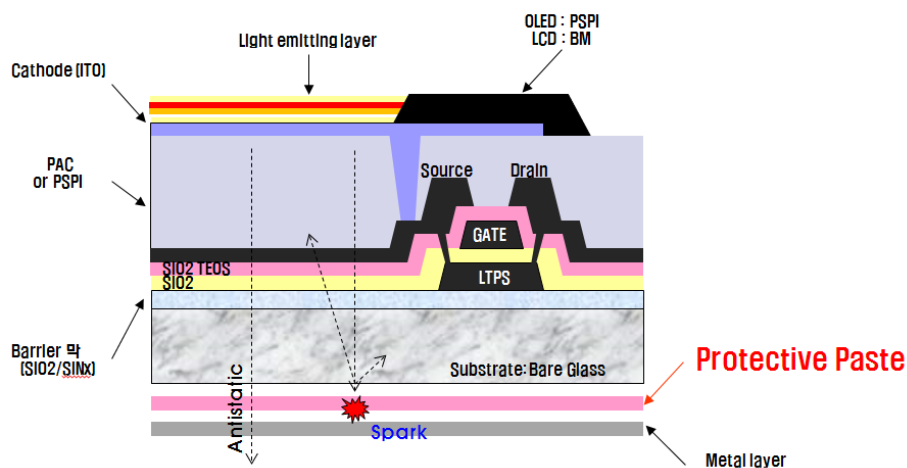


Fig. 1.Structure to our proposed paste

3 Conclusion

OLED becomes the main technology of the display. It has the advantages of the power efficiency, brighter colors. OLED panel can be built on a flexible and transparent substrate. However, it has the some problems. Organic layers are poor resistance of water invasion. We research the protective paste having the antistatic property, the hardness, the heat-resisting and the hygroscopicity.

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