Improved organic semiconductor thin film deposit process

Notre référence :
01061-01

Status des brevets

French priority patent application FR0707452 filed on October 24, 2007 and entitled “Réalisation d’une couche mince en matériau semi-conducteur”

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Status Commercial

Exclusive or non-exclusive license

Laboratoires

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CONTEXT

Organic semiconductors (pi-conjugated molecules and macromolecules) have been used since the mid-80s as active layers for the forming of various electronic components. Many processes exist but none of them are fully satisfactory:

- Wet process
- Vacuum evaporation techniques

Also, another problem encountered by these prior art techniques is the difficulty in accurately controlling the extent of structural organization finally obtained. Yet, control over the structural quality of these thin films is a key point which governs the electron transport properties and performance levels of the devices.

TECHNICAL DESCRIPTION

In the present work, the inventors have developed a method to form a thin film of molecular organic semiconductor material intended to be integrated in a device.
The steps are as follow:

- providing a determined quantity of molecular OSCM in the form of a melt on the surface of a carrier so as to form a thin film
- cooling as per a determined temperature profile to cause solidification of the thin film

BENEFITS

- Controlled and reproducible manner
- Large surface areas (wafers of 200 to 300 mm in diameter).
- Easy
- Low cost
- Easily transposed on an industrial scale

INDUSTRIAL APPLICATIONS

Organic electronic devices

- OFET : organic field effect transistor
- OLED : organic light emitting diode
- OSC : organic solar cell

For further information, please contact us (Ref 01061-01)

Mots clés :
Organic electronic thin film organic semiconductor.