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Basic Patent Network Constructed for Double-Layered Anisotropic Conductive Films

- Major Improvement in Connection Reliability for Different Types of Adherends -

Hitachi Chemical Co., Ltd. (Head Office: Tokyo; President and CEO: Kazuyuki Tanaka; paid-in capital 15.5 billion yen, hereinafter referred to as "Hitachi Chemical") has been manufacturing the anisotropic conductive films (the product name: "ANISOLM"), primarily used to connect electronic components, and hereby announces construction of basic patent network for the double-layered anisotropic conductive films. This type of anisotropic conductive films is particularly ideal for connection with circuits formed on different types of adherends.

The anisotropic conductive films are used for circuit connections in flat panel displays such as liquid crystal displays, in mobile handsets' and etc. These are widely utilized as a core technique for collectively connecting multiple microcircuits. Hitachi Chemical has held the largest global market share in this product since the production and the distribution begun in 1984, ahead of the rest of the world.

With electronic devices becoming more diversified, methods for connecting circuits formed on different types of adherends are increasing in number. As for semiconductor mounting, for example, methods such as flip chip mounting, whereby IC chips are mounted directly on printed wiring boards and flexible printed circuits, are receiving particular attention as new mounting methodologies that contribute to cost reduction, and higher connection reliability. However, when circuits formed on different types of adherends are connected, stress may occur at the contact area. This is attributable to differences in coefficients of thermal expansion of those adherends and causes reduction in connection reliability. Thus, there is a need for technology to solve this problem.

Using technologies that have been evolved over a number of years in the role as a leader in anisotropic conductive films, Hitachi Chemical has developed a technique that prevents peel-off of adhesive layer and an increase in contact resistance for different types of adherends at contact area by re-evaluating and optimizing the physical properties of each layer for synthetic resin composition and formulation to achieve major improvement in connection reliability. This technology, consequently, can contribute to productivity improvement for a wide variety of electronic devices.

We applied for patents on the inventions related to this technology in 1997. In 2010, the applications of three patents have been granted by Japan Patent Office. Hitachi Chemical has also filed the technology related patent in the other countries, and those patents are already registered in China, Korea, the U.S., Europe, and Singapore. Hitachi Chemical has succeeded in constructing a global patent network.

We are committed to providing a business advantage in intellectual property to differentiate double-layered anisotropic conductive films as our key technology by effectively utilizing the constructed basic patent network.