DKN Research Newsletter

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(Micro Electronics & Packaging)
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Transparent Flex Circuits, Stretchable Flex Circuits

I attended the JPCA Trade Show earlier this month. Most of the products on display are related to electronics, the electronics industry, packaging and electronic circuits. Flex circuit manufacture and material companies that featured flexible circuits at the exhibition focused their attention on Transparent Flex Circuits and Stretchable Flex Circuits

One of the highlights of the show was the presentation of New Product Introductions (NPI). Customers and media personal flocked to this event and it was standing room only.

Oki Electric Cable, a Japanese flex circuit manufacturer, participated during the NPI session. Mr. Maruyama, an engineering Manager with Oki Cable spoke about market demands and basic construction of transparent & heat-resistant flexible circuits. The company employed a standard photolithography and chemical etching process for special thin adhesiveless copper laminates developed by Asahi Denka, a plating firm in Japan. Asahi Denka developed a series of metalizing processes to generate thin copper laminates with non-standard flexible films including fluororesin. The process could prove valuable for the semi-additive process to generate ultrafine traces down to a few micron line/space on double sided circuits with micron size via holes.

Oki Electric Cable displayed a couple of flex circuits with chip LEDs assembled by using a standard soldering reflow process. This intriguing process garnered a lot attention. The company reps did not talk about cover materials for the conductor traces, but there were several material suppliers that displayed transparent dielectrics targeting the transparent flexible circuits. There were a few more flexible circuit manufacturers that displayed transparent flexible circuits; however, they did not disclose any more information than Oki Electric Cable.

Stretchable (elastic) flex circuits were also a popular item at the show. More than a dozen flex companies featured samples of stretchable circuits, and material companies spoke about their involvement with stretchable circuits. There are two types of stretchable circuits, the first one is a spiral flex circuit with standard constructions, and they are very long. They resemble curled cables. The second types are stretchable circuits built on elastic materials such as rubber sheets or

textiles. These companies are expecting a large market for stretchable flex circuits as the demand for them rise from disposable devices used in the medical and health care fields. Traditional textile material companies and electronic material suppliers focused on introducing new value-added materials hoping to grow in this booming market.

Many of the exhibitors fielded a lot of interest and opportunities at the show. Most of them left the show feeling very optimistic about the future. Let's hope this turns into some new business!

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Headlines of the week
(Please contact haverhill@dknreseach.com for further information of the news.)

1. Renesus Electronics (Major semiconductor manufacturer in Japan) 6/8
Has manufactured a new low power consumption SRAM for IoT devices used in home & healthcare equipment introducing SOTB structures.

2. Kyoto University (Japan) 6/8
Has co-developed a new filtering system to remove carbon dioxide injecting MOF (nano size particles) in PIM-1 (a kind of high polymer.

3. Toshiba Materials (Subsidiary of Toshiba) 6/13
Has agreed with Kyocera to cooperate for the R&D and commercialization of nitrate ceramic products targeting automobile parts.

4. Shimadzu (Major analytical equipment manufacturer in Japan) 6/13
Has commercialized a new high resolution scanning probe microscope "SPM-8100FM". It has nanometer level resolution with high speed data processing.

5. Toshiba (Major electric & electronics company in Japan) 6/13
Has received an order for large scale hydrogen fuel cell system (100kW) from Showa Denko. The system will be installed in a new hotel in Kawasaki.

6. NEC (Major electronics company in Japan) 6/13

Has rolled out a new OCR scanner "N6370E". It is capable to process 210 sheets per minute with a higher resolution.

7. Furukawa Electric (Major cable manufacturer in Japan) 6/16
The R&D project of carbon nano tube (CNT) wire was accepted by the government. The new CNT wire will realize high efficiency motors for electric automobiles.

8. Arakawa Chemical (Specialty chemical supplier in Japan) 6/16
Has co-developed a new AD process (Aerosol Deposition) with AIST. The new process enables ultra thin coating of ceramic materials on plastic substrates.

9. Tokyo Institute of Technology (Japan) 6/15
Has discovered a special conversion phenomenon that increases the efficiency more than 50% by irradiating tera-Heltz radio magnetic wave on a ceramic including Bi and Co.

10. Tokyo University (Japan) 6/16
Has co-developed a new chemical sensor for agriculture. The new device detects agricultural chemicals in the firm air effectively and quickly.

11. NEDO (Major R&D organization in Japan) 6/19
Has started a new project to develop cost effective recycling process for rare earth metals utilizing electronic wastes.

12. Toshiba (Major electric & electronics company in Japan) 6/19
Has developed a new strain gage introducing spintronics technologies. The sensitivity of the new device is more than hundred times higher compared to the traditional semiconductor devices.

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