

May 16, 2014

## **46<sup>th</sup> Annual JCIA Technology Award Winners Have Been Selected**

Japan Chemical Industry Association

Japan Chemical Industry Association (Chairman: Kyohei Takahashi, Chairman of Showa Denko K.K., JCIA) has recently selected the winners of the 46<sup>th</sup> Annual JCIA Technology Award. The awards ceremony will be held at the 23<sup>rd</sup> JCIA Annual Convention on May 29 and awardees will make presentations at the JCIA Symposium 2014 to be held on June 2 in Tokyo.

The JCIA Technology Award honors companies that have contributed to the development of the chemical industry as well as the betterment of the economy and society at large by developing and commercializing superior chemical technologies. Every year, candidates' achievements are publicly recruited from among chemistry-related enterprises, and awardees are selected for a Grand Prize, a Special Technology Prize, and an Environmental Technology Prize. This year, seven candidates were carefully reviewed by the JCIA Technology Committee and the following awardees have been selected:

**Grand Prize** (Criteria: Superior, fully original technology that has contributed to scientific and technical progress and has been established as a technology with high industrial value)

### **Kaneka Corporation**

#### **“R&D and Commercialization of PIXEO BP (material for Flexible Copper-cladly Laminates:FCCL)”**

With the demand for high-performance, small-size, light-weight, and thin mobile electronic devices such as cellular phones, together with diffusion of lead-free, environmentally conscious soldering, the demand for all-polyimide type FCCL has been expanded rapidly. Today, most of the use of FCCL are for applications of smart phones and tablet-type devices. High heat-resistant, high dimensional stability, and high cost performance “PIXEO BP,” commercialized in 2006, has obtained high market share and continued to contribute for further expansion of FCCL market. The characteristics of this technology are: (1) simulation design technology of layer structure, (2)

molecular design of the thermoplastic polyimide adhesive layer in which trade-off high heat-resistant soldering and high adhesion are compatible by analysis of the mechanism of heat characteristics, (3) development of ultra-high temperature laminate technology and laminating equipment which is made open for use by customers, and (4) development of SW Grade by three layers co-extrusion technology with which the company has aimed to expand the market with overwhelmingly advantageous cost competitiveness.

**Special Technology Prize** (Criteria: Original, improved technology that has contributed to the scientific and technical progress.)

**Shiseido Co., Ltd. and Kao Corporation**

**“Development of h-CLAT as Alternative Method of the Skin Sensitization Test”**

In recent years, the development of chemical safety-assessment tests that do not rely on animals has been necessitated from the perspective of animal welfare and as well as efficiency. Therefore, both companies conducted joint research to develop an alternative method of the skin sensitization test h-CLAT (human cell line activation test), and have verified its usefulness. In this test method, accurate assessment of skin sensitization of the tested substance is possible by determining changes of the cell surface molecules CD86 and CD54, after the human monocyte cell line THP-1 has been treated together with the test substance. The characteristics of this technology are that it not only does not require the use of human blood or animal, as it uses a cultivated cell, but also is a highly reliable and efficient test method that can become practical by optimizing the test conditions. The h-CLAT method has been widely applied for cosmetic materials, the assessment of pharmaceuticals and medical devices, and for research on allergens. In addition, this technology has been validated by the European Centre for the Validation of Alternative Methods (ECVAM) and aims at becoming an OECD-preferred method in 2015.

**Environmental Technology Prize** (Criteria: Original, improved technology that is substantially effective in reducing burdens on the environment footprints and also has contributed to the progress of scientific technology.)

**Du Pont-Mitsui Fluorochemicals Co., Ltd.**

**“The World’s First Commercialization of Low Environment Burden**

**(Extremely Small Global Warming Potential and Zero Ozone Layer Depleting Potential) Fluorinated Fluid”**

Society requires the abolishment of specified CFCs /HCFCs which destroy the ozone layer and contribute to global warming. While reduction by means of legislation of HFCs has been in progress—of which use is particularly large among fluorocarbons—the reduction of PFCs, of which Global Warming Potential (GWP) is quite big, has not been addressed properly. To reverse this, U.S. company DuPont has developed HFX-110, comprised of a new kind of fluorinated compound called hydrofluoroolefin (HFO) with a double bond and hydrogen atom in the cell. The product properties are similar to existing products, its GWP is less than 10 in liquid in normal temperature, its atmospheric lifetime is several days, its toxicity is low and it is non-flammable and high in safety characteristics. In September 2012, DuPont-Mitsui Fluorochemicals started commercially producing HFX-110. There are three kinds of product grades, to be used for heating transfer fluid, solvent, and cleaning agent, and these products are used for manufacturing semi-conductors, precision cleaning electronic components, surface treatment, and other applications.

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