May 20, 2011
Toppan Printing Co., Ltd.
Arisawa Manufacturing Co., Ltd.

**Toppan Printing and Arisawa Manufacturing enter tie-up in patterned retardation film business for 3D-compatible display**

Toppan Printing Co., Ltd. (hereafter referred to as Toppan Printing; head office: Chiyoda-ku, Tokyo; President & Representative Director: Shingo Kaneko) and Arisawa Manufacturing Co., Ltd. (hereafter referred to as Arisawa Mfg.; head office: Joetsu-shi, Niigata; President & Chief Executive Officer: Sanji Arisawa) have agreed, as of May 10, 2011, on a business tie-up regarding patterned retardation film (FPR) for 3D-compatible displays adopting the passive method, which, through polarized glasses, shows different images concurrently to the right eye and the left eye.

Based on this agreement, the two companies are establishing on June 01, 2011 a joint venture company which engages in development of efficient mass-production technologies for patterned retardation films for 3D-compatible displays, and also manufacturing of such films.

<Background>

With the market for 3D-compatible television expected to expand in the coming years, Television manufacturers one after another are launching their respective new models featuring varied methods for 3D functions. Among such methods, the passive method, which shows different images to the right eye and the left eye concurrently by use of polarized glasses, has such features as i) enhanced viewability even with fast-moving images, having negated the need for screen switching between the right-eye display and the left-eye display, ii) being free from on-screen flicker, and iii) the glasses used do not require batteries, are lightweight and also available at low cost. Such features are prompting an increasing number of products to adopt the passive method.

The passive method has conventionally been based on a process where a glass plate formed together with patterned retardation layer is applied to the front face of an LCD panel. From now on, however, the demand is anticipated to surge for patterned retardation films that excel in productivity, in view of the needs for saving of both weight and cost, among others.

<Establishment of joint venture company>

Arisawa Mfg. manufactures and markets glass-based product formed together with patterned retardation layer (brand name “Xpol”) for 3D-compatible displays, enjoying a lion’s share in the market for the 3D-compatible monitors for use in broadcast stations.

Toppan Printing engages in production and sales of anti-reflection film for LCD televisions and has a proven track record in the display-related business fields as well as superior technologies for film processing and coating.

The forthcoming establishment of joint venture company, through which the two investing companies will
co-develop patterned retardation films (under the passive method), aims to swiftly build up technologies, place products on the market, and also maintain stable supply thereof.

〈Profile of the newly established company〉
*Company name: Toppan Arisawa Optical Technology Co., Ltd.
*Business location: 1-5-1, Taito, Taito-ku, Tokyo, Japan
*Representative: Mr. Seiji Mitsui, President & Chief Executive Officer
*Capital stock: ¥490million
  (Capital contribution ratio: Toppan Printing - 50%, Arisawa Mfg. - 50%)
*Date of establishment (planned): June 01, 2011
*Principal scope of business: Product planning, design, development and production of patterned retardation film (FPR)