# Asahi Glass to Establish New Production Site for Large-sized TFT LCD Glass Substrates in Korea

Asahi Glass Co., Ltd.

Asahi Glass Co., Ltd. (Tokyo, Japan; President&CEO: Masahiro Kadomatsu) has decided to branch out into the business of manufacturing and marketing non-alkali glass substrates for TFT LCDs (Thin Film Transistor Liquid Crystal Displays), for the first time for the Company, in Gumi, the Republic of Korea, on the precondition of joint enterprise with Hankuk Electric Glass Co., Ltd. (Gumi, Gyeongsangbuk-do, Korea) in which Asahi Glass has a 42.76% holding. The new business will be established in May 2004, and a polishing line for glass substrates will be installed with an investment of approximately 9 billion yen. The construction of the polishing line is scheduled to start in August 2004, with commercial production slated to start in July 2005.

Demand for TFT LCD panels is growing faster than expected, and is projected to increase at a rate of 25% per annum in terms of volume. In addition to demand for PC monitors, demand for TVs is expected to grow significantly, with events such as the Olympic Games and the soccer World Cup in the offing. Given the shift towards larger panels for TVs, demand for glass substrates is expected to grow substantially, exceeding growth in demand for the panels themselves. There are fears of a further strained supply-demand situation for TFT LCD glass substrates, especially for larger sizes.

Asahi Glass currently produces glass substrates in its Kansai and Keihin Plants in Japan, and performs polishing processes in Kansai Plant, Asahi Glass Fine Techno (Yonezawa, Japan; 100% owned by Asahi Glass) and Asahi Glass Fine Techno Taiwan (Douliu, Taiwan; 100% owned by Asahi Glass). To respond to ongoing strong demand for glass substrates, Asahi Glass will substantially increase its production capacity by installing additional furnaces (two) and polishing lines in Taiwan from September 2004 to April 2005.

Meanwhile, with regard to demand for TFT glass substrates by country/region, Asahi Glass estimates that Japan accounted for 30%, Korea 40% and Taiwan 30% in 2003. This time, Asahi Glass has decided to establish its first production site in Korea where growth of demand, especially for large-sized LCD panels, can be expected in the future. Establishment of the new company and installation of the polishing line are the first steps to expand its presence in Korea, and Asahi Glass will make the necessary investments to ensure a stable supply to customers in response to the growing demand for glass substrates expected well into the future. In branching out into Korea, Asahi Glass is proactively utilizing the excellent foreign investment support system provided by the Korean government and municipalities.

The outline of the new company is as follows.

1. Name:	Asahi Glass Fine Techno Korea (provisional name)	
2. Location:	Gumi, Gyeongsangbuk-do, The Republic of Korea	
3. Capital:	At least US\$30 million	
4. Investment stake:	Initially 100% by Asahi Glass Co., Ltd.	
	(incl. investment from a wholly-owned subsidiary of Asahi Glass)	
5. Establishment:	May 2004	
6. Construction:	August 2004 (scheduled)	
7. Start of production:	July 2005 (scheduled)	

The Company will initially establish a new firm in which the Company has a 100% holding (including investment from the wholly-owned subsidiary of the Company) to promptly start procedures for construction of the plant. Then, the Company will discuss with Hankuk Electric Glass Co., Ltd. such issues as shareholding ratio, and upon conclusion of the agreement, will convert the new business into a joint enterprise. With regard to its shareholding ratio, Asahi Glass intends to hold adequate size of controlling share to take the initiative in day-to-day management of the enterprise, and promote a globally integrated management of this business.

Unlike most of its peers, Asahi Glass incorporates the float process, which is suited for volume production of larger sizes, in manufacturing its product, "AN100" grade glass substrates. "AN100" is less prone to warpage and hardly contracts during heat treatment during the manufacturing process of TFT LCD panels. With growing environmental conservation concerns, it is also highly valued by customers as "environmentally-friendly" glass substrates, free of such toxic substances as arsenic and antimony that are usually used in the manufacturing process to remove bubbles.

By leveraging its strengths in the areas of the manufacturing process and environmental protection, Asahi Glass will proactively expand its presence while precisely identifying the trends in markets such as Japan, Korea and Taiwan, aiming to become the global leader in this business.

For further information, please contact Shinichi Kawakami, General Manager, Corporate Communications Division, Asahi Glass Co., Ltd.

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## [Reference]

#### 1. Features of glass for TFT LCD Glass Substrate of Asahi Glass

Asahi Glass is the only glass manufacturer in the world to employ the *float process* in the manufacturing process of glass for TFT LCD glass substrates. "AN100" grade glass substrate, put on the market in 1998, exhibits the following major features:

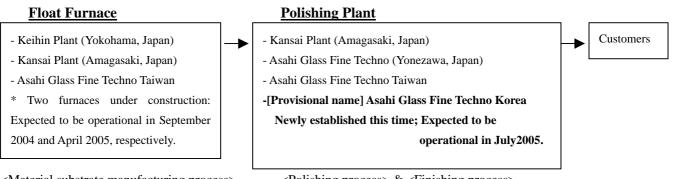
- (1) Large-sized glass for TFT LCD glass substrates that can be supplied stably and in volume.
- (2) "AN100" provides all the features sought after in large-sized TFT LCD glass substrates of "fifth-generation size" (larger than 1m square) or greater, which will find their way into the mainstream in the TFT LCD panel industry in the near future.

1) It is less prone to warpage in TFT LCD panel manufacturing process, since it is more durable than other manufacturers' glass substrates.

2) Warpage and variations in substrate thickness are small, and it has excellent dimensional stability.

(3) The "AN100" is an eco-friendly product. It is the only non-alkali TFT LCD glass substrate not to include such toxic materials as arsenic trioxide (As<sub>2</sub>O<sub>3</sub>) or antimony trioxide (Sb<sub>2</sub>O<sub>3</sub>).

#### 2. Flowchart of the Asahi Glass TFT LCD Glass Substrate Manufacturing Process



<Material substrate manufacturing process>

<Polishing process> & <Finishing process>

### 3. Outline of Hankuk Electric Glass Co., Ltd.

(1) Corporate name:	Hankuk Electric Glass Co., Ltd.
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- (2) Location: Gumi, Gyeongsangbuk-do, The Republic of Korea
- (3) Representative: Representative Director and Chairman, Tokunosuke Koshida
- (4) Capital: 40,367 million KRW
- (5) Shareholders: Asahi Glass (42.76%), LG Electronics (20.0%), Others (37.24%)
- (6) Main business: Manufacture and marketing of CRT bulbs
- (7) Establishment: May 1974 (capital participation of Asahi Glass: December 1999)
- (8) Number of employees: 1,529 (as of the end of December 2003)