



# **Global and China Advanced Flat Glass Industry Report, 2011**

**Nov. 2011**

## ***This report***

- ◆ **Analyzes global and China's flat glass industry**
- ◆ **Focuses on high-performance flat glass industry**
- ◆ **Highlights the operation of key flat glass enterprises in China and worldwide**

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## Abstract

Advanced flat glass in the report is defined as automotive glass, electronic display glass, low-e glass and solar glass.

The market size of automotive glass approximates USD15 billion, with around USD13 billion from OE market and USD2 billion from AM market. In OE market, the five titans including AGC, NSG, Fuyao, PGW and Saint-Gobain occupy approximately 85% altogether in the global market, indicating a very high entry threshold.

As for the electronic display glass market, the market size is about USD16.5 billion, of which, large size TFT-LCD substrate registers around USD15.7 billion. As the production of glass substrate requires sophisticated technologies, only four companies, namely, US-based Corning, Japan-based AGC, Nippon Electric Glass and AvanStrate, can make the product. As the world's largest glass substrate manufacturer jointly invested by Corning and Samsung, Samsung Corning realized revenue of USD4.856 billion in 2010, with the gross margin exceeding 75% as opposed to 5-8% of ordinary flat glass.

Low-E glass and solar glass are among the hottest investment topics at present, but their gross margin is far less than that of large size TFT-LCD substrate.

In Europe and the USA, the utilization rate of low-E glass is extremely high, but very few buildings are erected each year. In contrast, China inputs huge amounts of money to build public and commercial buildings each year, so it is the largest market of low-E glass. In China's civil architecture field, the penetration rate of low-e glass is very low due to the exorbitant price, and the market size will see no considerable growth in the short run.

European and American enterprises are taking leading roles in low-e glass market. In particular, PPG, Guardian and Saint-Gobain take a lion's share of the European and American market. However, due to high transportation cost, these enterprises can thrust into the Chinese market only through joint ventures. Thus far, the three have been very conservative about investments and rarely expanded capacities.

The market size of solar (PV) glass is relatively small. Solar glass is mainly classified into two categories: one is anti-reflective glass for silicon solar cell, and the other is TCO glass for thin film solar cell. The solar industry is facing unprecedented winter, witnessing grim price competition that causes sharp decline in gross margin. It is estimated that the market size of TCO glass in 2011 will approximate 57.092 million sq m valuing about USD1.3 billion. Due to very high industry admittance threshold, TCO glass market is largely monopolized by AGC and NSG of Japan.

The nosedive of polycrystalline silicon price has undermined the cost edge of thin film cell. In 2009, the silicon cell was priced at USD2.4/w with the cost around USD2.02/w; the thin film cell was priced at USD1.95/w with the cost around USD1.2/w. Presently, the cost of silicon cell is reduced to below USD1.18/w, while the cost of thin film cell cut down to USD0.92/w. As a result, the cost advantage of thin film cell manufacturers has been weakened significantly. The output of Chinese thin film cell manufacturers is relatively low. The major thin film cell manufacturers worldwide concentrate in the USA, Japan and Germany. Particularly, US-based First Solar occupies an overwhelming share of 50% or so.

## Major Flat Glass Manufacturers Worldwide and Their Output Values, 2010-2011 (Unit: USD mln)

Company	Location	2010	2011E
AGC	Japan	11,366	11,479
Saint-Gobain	France	6,918	7,160
NSG	Japan	6,575	6,905
Guardian	USA	4,928	5,062
Samsung Corning	Korea	4,856	4,802
Corning	USA	3,011	3,066
NEG	Japan	2,925	2,886
Fuyao	China	1,257	1,464
China Southern	China	1,144	1,392
PPG	USA	985	980
Xinyi	China	967	1,359
PWG	USA	956	1,128
Farun	China	933	930
Taiwan Glass	Taiwan	875	860
CGC	Japan	804	788
Sisecam	Turkey	698	702
China Glass Holdings	China	466	478
SYP	China	397	372
Jinjing	China	333	320
Kibing	China	281	298
Float	German	243	258
Centrosolar Glas	German	102	90

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