

Research Report of Global and Chinese Light-Emitting Diode Industry, 2009

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Abstracts

The light-emitting diode is one of the semiconductor diodes, which can turn electrical energy into luminous energy and emit visible light in various colors, such as yellow, green, blue, etc, as well as invisible light, such as infrared and ultraviolet light.

Compared with small incandescent bulb and the neon lamp, light-emitting diodes are specially characterized with low operating voltage and electric current, high reliability and long performance.

The entry barriers of the light-emitting diode industry from the upstream to the downstream are cut down gradually. The upstream industry includes mono-crystalline chip and the epitaxial wafer while the middle stream industry is mainly engaged in chip processing and the downstream industry handles packaging, testing and application. The upstream and middle stream industries, most competitive and risky fields on world market, have higher technical contents and require more investments.. In the industrial chain of light-emitting diode, epitaxial wafer and chip account for about 70% of profits and the packaging accounts for 10 to 20 percent of profits, with 10 to 20 percent held by application field.

Under international energy crisis and the gradual improvement of the environmental protection requirements, the semiconductor light-emitting diode lighting, long performance, energy saving, safe, green and environmental protection, abundant colors and microminiaturization, has been recognized as the only one manner of energy saving and environmental protection in the world. The semiconductor lights, adopting light-emitting diode as the new lighting source, only run up one tenth of the electricity compared with the ordinary white light lamps and the performance can be postponed ten folds at the same brightness. In 2007, the total amount of the global light-emitting diode market exceeded 6 billion USD, up by 13.7% over the previous year. During 2006

to 2012, the annual compound growth rate of the global light-emitting diode market will reach 10%, most of which will mainly be contributed by the ultra high and high brightness light-emitting diodes.

The global light-emitting diode industry is mainly concentrated in Japan, Taiwan, Europe, America, South Korea, China, etc. Japan, the largest producer of the light-emitting diode industry in the world, holds 50% of the market share. Nichia Corporation is the world's largest provider of the high-brightness light-emitting diodes. Toyoda Gosei Co., Ltd is the world's fourth largest and Japanese is the second largest manufacturer of the light-emitting diodes. Osram Opto, located in the Europe and America, is the world's second largest and European is the largest manufacturer of the high-brightness light-emitting diodes. Taiwan, the global production base of the consumption electronic products, is mainly engaged in the production of the visible light-emitting diodes. Taiwan is also the world's largest downstream packaging and middle stream chip production base.

With more than 30-year development, Chinese light-emitting diode industry has formed the basically complete industrial chains, covering the LED inside, epitaxial wafer, chip package and application. At present, China has over 600 LED enterprises specializing in the downstream packaging and application. But the development of the epitaxial wafer and chip is comparatively backward. There are only about 10 enterprises engaged in the production of the epitaxial wafer for LED, as well as few chip manufacturers. So, the yield capacity enjoys a high degree of concentration.

With gradual enhancement of the luminous efficiency and application technologies, the application of the light-emitting diodes has been transferred from the initial indicator lights to screens, such as the landscape lighting, backlight, automobile lights, traffic lights, lighting areas, etc. The application of the light-emitting diodes is now in diverse development. It is predicted that the average compound growth rate of sales of the display light-emitting diodes will be above 15% in 2006 to 2010 and the annual average compound growth rate of sales of the landscape lighting will reach over 35%, with the annual average compound growth rate of sales of the backlight light-emitting diodes at more than 30%.

In 2010, many patents in the light-emitting diode industry will expire. Chinese enterprises are expected to break through the shackles of the intellectual property rights from European, American and Japanese giants. They should make good use of huge market bases and abundant labor resources in order to occupy a place in the global light-emitting diode market.

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