

## Electronics: a major contract in China on cutting edge display technology

Air Liquide was recently awarded a major long-term contract in China by CEC Panda Flat Panel Display Technology Co. Ltd (a CEC-Panda and Sharp LCD Joint-Venture) to supply ultra-pure carrier molecules to their first fab that will manufacture Oxide-TFT screens for mobile devices and TV sets on Generation 8.5 size (G8.5) glass substrates.

Oxide-TFT is a disruptive and complex high resolution display technology that only a few manufacturers have mastered at the mass production level. Applied to mobile devices, such as smartphones, tablets and notebooks, it helps optimize battery life and improves user experience by increasing run time and decreasing the weight of the devices.

Air Liquide will invest around **25 million euros** in a large on-site generator to produce ultra-high purity nitrogen and required bulk gases and back-up infrastructures for CEC-Panda's new fab, which will be based in **Nanjing Crystal Park, in Jiangsu Province**. The total amount of ultra-pure nitrogen under the new contract will be **23,000 Nm<sup>3</sup>/h**. Air Liquide will also supply electronic specialty gases, equipment and installation, and on-site management.

This is **Air Liquide's second contract** with CEC-Panda. The Group has been supplying CEC-Panda's first G6.0 fab, based in Nanjing Crystal Park, since 2010. By 2015, Air Liquide will supply a total of **37,000 Nm<sup>3</sup>/h** of ultra-pure nitrogen to these two CEC-Panda fabs.

CEC Panda was established by CEC (China Electronics Corp.), the largest state-owned IT company in China, founded in 1989, and Sharp Corporation, a Japanese multinational corporation that designs and manufactures electronic products.

**Michael J. Graff**, Air Liquide Group Senior Vice-President for the Americas and Executive Committee member overseeing Electronics, commented: ***"We are honoured by CEC-Panda's decision to expand our relationship to the supply of their new fab in the Nanjing Crystal Park. This new contract attests to our ability to supply leading electronics customers with products and services that meet the highest standards. It also reaffirms the value and competitiveness of our offer and our position in the fast growing mobility and smart devices revolution. Air Liquide is positioned to capture the growth of the high resolution and next generation mobile displays."***

### **Air Liquide Electronics**

With over **3,500 employees** and **€ 1,127 million revenue in 2013**, Air Liquide Electronics has activities in ultra-pure and specialty gases, new molecules, related equipment, and customized services.

The Electronics division management is based in Asia to enhance its proximity to the semiconductor, TFT-LCD and PV markets in Asia.

### **Air Liquide China**

operates more than **70 plants** and employs **4,000 employees** today, with a strong presence in the key coastal industrial areas, and is expanding into the center, south and west. Air Liquide also has strong Engineering and Construction capabilities via its Global E&C Solutions division. Air Liquide resumed the development of its activities in China in the 1970s with the supply of Air Separation Units and restarted gas operations in 1990.

### **The use of molecules in Flat Panel Industries**

High-purity gases are used to manufacture Thin Film Transistors (TFT), which lie at the heart of FPD technologies. The main role of nitrogen is to ensure a clean process environment. Electronics Specialty Gases (ESGs), along with other carrier gases, are used either to deposit, clean or functionalize the material layers that constitute the TFT.

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World leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with more than 50,000 employees and serves more than 2 million customers and patients. Oxygen, nitrogen and hydrogen have been at the core of the company's activities since its creation in 1902. Air Liquide's ambition is to be the leader in its industry, delivering long-term performance and acting responsibly.

Air Liquide ideas create value over the long term. At the core of the company's development are the commitment and constant inventiveness of its people.

Air Liquide anticipates the challenges of its markets, invests locally and globally, and delivers high-quality solutions to its customers and patients, and the scientific community.

The company relies on competitiveness in its operations, targeted investments in growing markets and innovation to deliver profitable growth over the long-term.

Air Liquide's revenues amounted to € 15.2 billion in 2013, and its solutions that protect life and the environment represented around 40% of sales. Air Liquide is listed on the Paris Euronext stock exchange (compartment A) and is a member of the CAC 40 and Dow Jones Euro Stoxx 50 indexes.