

## Air Liquide starts up a large hydrogen production unit in Germany

Today, Air Liquide held the official start-up ceremony for its new, state-of-the-art Steam Methane Reformer (SMR)<sup>1</sup> unit located in the Chempark Dormagen site near Cologne, Germany. Air Liquide invested around 100 million euros<sup>2</sup> in this highly flexible production unit, which will supply Bayer MaterialScience's new large-scale TDI (toluene diisocyanate) plant, one of the most important investments of the polymer company in recent years.

The new SMR, owned and operated by Air Liquide, has an annual production capacity of **22,000 tonnes**<sup>3</sup> of hydrogen and **120,000 tonnes** of carbon monoxide. According to the long-term agreement signed in 2012, it will supply Bayer MaterialScience with large quantities of carbon monoxide and hydrogen, supporting the company's ambition for this site to become their European center for TDI production. The chemical is employed in the production of flexible polyurethane foams, which are used to manufacture many everyday articles including mattresses, car seats and upholstered furniture.

The unit was designed and built by the Air Liquide Engineering & Construction teams using leading technologies that ensure the **highest standards of efficiency, flexibility and safety while increasing production capacities**.

Connected to Air Liquide's **600 km Rhine-Ruhr pipeline**, it will also enable Air Liquide to provide **other customers in the basin with hydrogen**.

**Guy Salzgeber**, Vice-President, Western Europe, and member of Air Liquide group's Executive Committee, commented: **"We are proud to have been chosen by Bayer MaterialScience as its technological partner for one of their most important projects in recent years. Through this first major contract in Germany with Bayer, we extend our long term worldwide relationship with this customer. This investment also expands and strengthens Air Liquide's position in Germany by ensuring highly reliable supply to its customers. Germany is one of the key countries for our Group in Europe, with around 600 million euros of industrial investments in this country over the last 5 years."**

<sup>1</sup> By steam reforming natural gas, a SMR produces hydrogen and carbon monoxide.

<sup>2</sup> Investment decided in 2012

<sup>3</sup> Or 25,000 Nm<sup>3</sup> per hour

### **Air Liquide in Germany**

Air Liquide has been present in Germany since 1971. It now employs more than 4,400 people and serves approximately 300,000 customers in Germany's most important industrial regions. It supplies a number of industries, such as the aircraft, automotive, food and beverage, chemical, electronic, and energy sectors, as well as the healthcare industry, and is very active in the deployment of hydrogen energy projects.

### **The Large Industries business line of Air Liquide**

offers gas and energy solutions that improve process efficiency and help achieve greater respect for the environment, mainly in the refining and natural gas, chemicals, metals and energy markets. In 2014, revenues were €4,980 million.

### **The Engineering and Construction activity (Global E&C Solutions)**

The Engineering and Construction activity (Global E&C Solutions) builds the Group's production units – mainly air separation units (ASUs) and hydrogen production units – and provides plants for third-party customers.

### **Hydrogen for industry use**

Hydrogen is used today in many industrial sectors, from refining for the treatment of heavy crude oil to produce sulphur-free fuels that comply with environmental regulations, to chemicals and petrochemicals for the production of a variety of everyday products, including polyurethanes (foams) for construction materials, polycarbonates for DVDs, and nylons for textiles.

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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 € 15.4 billion in 2014, and its solutions that protect life and the environment represented more than 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.