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Space: Air Liquide and Astrium create EuroCryospace

press release

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Air Liquide Technologies of the Future

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Ariane 5 ME

The new cryogenic upper stage for Ariane 5 ME, powered by liquid hydrogen and oxygen, will present a more versatile mission profile than the current versions of Ariane 5. **In overcoming some major challenges**, such as the management of the ergols in micro gravity and the important mechanical and thermal constraints for this type of tank, **the new cryogenic upper stage will enable the European Ariane launcher to offer a wider range of services, from satellite launches to special missions.**

Ariane 5 ME will enable a **payload of 12 metric tons** to be carried, compared with 10 tons today. In addition, due to its re-ignition capability, the new launcher will be more able to place multiple satellites into orbit or send probes to other planets.

Air Liquide and Astrium announce the creation of **EuroCryospace, a strategic partnership at European level**. EuroCryospace is the new European expansion of Cryospace, created nearly 25 years ago by both companies, for the development and production of Ariane cryogenic tanks.

EuroCryospace will be focused on the development and production of cryogenic tanks, in particular for the Ariane 5 Midlife Evolution (ME) upper stage.

Ariane 5 ME, a major **European Space Agency (ESA)** programme, adopted by the Council of Ministers in 2008, is aimed at upgrading the current Ariane 5 launcher in order to meet the market requirements for a higher launch capacity.

Further development phases should be approved at the next ESA Ministerial Council meeting, scheduled for the end of 2012.

This long-term commitment will lead to the **opening of a new site in Bremen, Germany, and to the creation of around 40 jobs during the production phase**. The land, located near Bremen airport, was purchased in December 2011 for the construction of the building that will house development and production. It should be operational mid-2013 with **the first productions delivered in 2014**.

Through Cryospace, Air Liquide and Astrium have been working together successfully for 25 years. **Air Liquide**, historical partner of the European space programme, and **Astrium**, Europe's leading space company and prime contractor for the development of Ariane 5 Midlife Evolution (ME), both **wish to continue to jointly develop** their activity in space technologies through the Ariane programme, taking into account the industry's new requirements. This long term commitment will enable the development of capabilities that will prove indispensable to the future technology challenges.

The new upper stage tank developments will take place in Germany. Thanks to its significant presence in Germany, the Group's second European pillar, Air Liquide will be supporting its partner in this new development.

François Darchis, a member of Air Liquide's Executive Committee supervising Technologies of the Future, said, **"For Air Liquide, the creation of EuroCryospace represents an opportunity to reaffirm its commitment to the space industry. The Group, which has made its capabilities and technologies available to the European space program since the creation of Ariane, also intends to contribute to the development of new launchers with cryogenic propulsion, in partnership with Astrium."**

Space cryogenics

Air Liquide has developed unique expertise in the area of space cryogenics. Innovation, dedicated engineering skills, a wide scope of competencies (thermal, functional, structural, system approach), testing capabilities – these are all the reasons why Air Liquide is a major partner in future developments of space

EuroCryospace

Announced at the signing of a Memorandum of Understanding (MoU) in October 2010, the creation of the two joint ventures is now finalised.

EuroCryospace is a French GIE (Groupement d'Intérêt Economique - Economic Interest Grouping) responsible for the design, the development, the marketing and the qualification of cryogenic tanks.

EuroCryospace Deutschland is a European Economic Interest Grouping (EEIG) based in Bremen whose purpose is the production of the cryogenic tanks of the upper stage of Ariane 5 ME.

Euro Cryospace in Les Mureaux, France, and Air Liquide Advanced Technologies in Sassenage, France, will continue to produce the current Ariane 5 ECA and ES tanks.

Alain Charneau, Astrium Space Transportation CEO and Astrium Executive Committee member said: ***“With the creation of EuroCryospace, Astrium will continue with its ongoing research into optimizing industrial construction processes in Europe. In pooling the expertise of both companies and placing the production site at the very core of the integration chain, this new venture will help reduce the costs of the Ariane launcher.”***

Air Liquide is the world leader in gases for industry, health and the environment, and is present in 80 countries with 46,200 employees. Oxygen, nitrogen, hydrogen and rare gases have been at the core of Air Liquide's activities since its creation in 1902. Using these molecules, Air Liquide continuously reinvents its business, anticipating the needs of current and future markets. The Group innovates to enable progress, to achieve dynamic growth and a consistent performance.

Innovative technologies that curb polluting emissions, lower industry's energy use, recover and reuse natural resources or develop the energies of tomorrow, such as hydrogen, biofuels or photovoltaic energy... Oxygen for hospitals, homecare, fighting nosocomial infections... Air Liquide combines many products and technologies to develop valuable applications and services not only for its customers but also for society.

A partner for the long term, Air Liquide relies on employee commitment, customer trust and shareholder support to pursue its vision of sustainable, competitive growth. The **diversity** of Air Liquide's teams, businesses, markets and geographic presence provides a solid and sustainable base for its development and strengthens its ability to push back its own limits, conquer new territories and build its future.

Air Liquide explores the best that air can offer to preserve life, staying true to its Corporate Social Responsibility and sustainable development approach. In 2011, the Group's revenues amounted to **€14.5 billion**, of which more than 80% were generated outside France. 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.