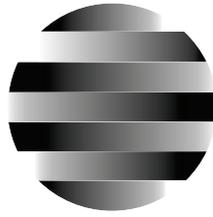


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Hydrogen

The market in 2016

Trends in supply and demand

Hydrogen fuel cells



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challenging the hydrogen economy

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► Cryotherm expertise used in rocket project

Cryogenics specialist Cryotherm GmbH & Co. KG has been commissioned to equip a new rocket test rig in Germany with supply lines of both liquid hydrogen (LH₂) and liquid oxygen (LOX).

Cryotherm's customer is operating test facilities for rocket engines on its proving ground. Within this project, a new cryogenic upper stage for different launchers is under development. Test and qualification of the stage requires a new test facility, which will be situated on the test site in Germany.

Requirements for the testing phases of the new cryogenic upper stage at this facility call for a guaranteed supply of LH₂ and LOX for filling purposes. Both will be supplied via cryogenic tanks.

Cryotherm fitted the previous test rig with transfer pipes, valves, sensor technology and other cryogenic equipment back in 2003. Following developments in aerospace engineering in the past 12 years, however, the new project presents a number of challenges, including the lowest operating temperature being 20 Kelvin (-253°C); both the helium leak rate and heat ingress are therefore of great importance.

To guarantee such low levels of heat radiation on the project, the company not only carried out the engineering design of the panels for cooling down, degassing and flushing the entire cryogenic facilities, but also the vacuum superinsulation technology in the hydrogen and oxygen lines.

Air Liquide expands further into pharmaceuticals sector

FRANCE

CRYO International, an Air Liquide group subsidiary, has acquired UK-based PDP Couriers, a major player in the customised transport of clinical and medical research for the pharmaceutical and biotechnology industries.

PDP Couriers, which also supplies temperature-sensitive samples and products, generated revenues of €21m (\$23.4m) in 2015 and has capitalised on expanding markets in Eastern Europe, Latin America and Asia.

The acquisition is part of a new strategy for France-based CRYO International, which specialises in regulated temperature logistics

solutions. The goal is to offer its customers innovative and customised temperature-controlled logistics solutions anywhere in the world.

Guy Salzgeber, a member of the Air Liquide Group's Executive Committee, said, "Cryo International illustrates the group's intention to seize growth opportunities in adjacent markets. The acquisition of PDP Couriers is very much in line with this approach."



Satellite developments

Meanwhile, the Air Liquide group has also been busy furthering its presence in the space sector, with the signing of two separate contracts worth a combined total of €20m (\$22m) for the supply of high purity xenon in the all-electric propulsion satellite market.

The first is with Airbus Defence and Space, and the second with Thales Alenia Space, the leader in High Throughput Satellites. The development of all-electric engines – using energy produced by solar panels to eject a gas like xenon and generate thrust – is beginning to revolutionise the satellite industry, Air Liquide says.

WELTEC invests in biogas plant overhaul

GERMANY

Nordmethan GmbH, a subsidiary of plant manufacturer WELTEC BIOPOWER, has purchased an existing biogas plant and divulged a comprehensive restructuring plan to get it up and running again.

The decommissioned plant, located in Falkenhagen, Germany, was bought in January 2016. Following a €2m (\$2.2m) renovation investment and a thorough overhaul, Nordmethan aims to resume operations from the plant by the end of this year.

The new acquisition follows the purchase of two biomethane refineries in 2015.

Carbueros Metálicos unveils fresh website

SPAIN

Carbueros Médica, a division of Carbueros Metálicos dedicated to providing solutions in the hospital sector, has launched its overhauled website.

The Spanish company, part of a wholly owned subsidiary of Air Products, has designed Hospigas+®, which features an interactive and visual design allowing flexibility and easy access to all practical information for professionals in the hospital division. Its interactive feature incorporates a virtual setting in which the company's services are displayed throughout the hospital.

A-Gas urges switch to alternate refrigerants

UNITED KINGDOM

A-Gas is urging the refrigeration corporation to switch to low global warming potential (GWP) refrigerants, before shortages of favoured R404A hit the industry.

R404A is the most widely used refrigerant in the industry, but is coming under greater scrutiny due to its high GWP. A-Gas is suggesting switching to Solstice® N40 (R-448A) and Opteon® XP40 (R-449A), which both have lower GWPs and offer improved energy efficiency.

A-gas claims the new refrigerants can save 5-10% on the running costs when used in large cold store operations.