

## Air Liquide strengthens its expertise in extreme cryogenics with the acquisition of a majority stake in Cryoconcept

**Air Liquide has acquired 80% of the capital of the French company Cryoconcept, which specialises in dilution refrigeration - a technology allowing to reach very low temperatures. This transaction enables Air Liquide to strengthen its expertise in the field of extreme, or close to absolute zero, cryogenics, to propose a broader offer and accelerate the development of Cryoconcept's activities.**

Founded in 2000 and a spin-off from CEA (the French Alternative Energies and Atomic Energy Commission), Cryoconcept employs 14 employees specialised in the field of very deep refrigeration using dilution refrigeration<sup>1</sup> based on the use of helium-3 and helium-4. This unique technology, which makes it possible to reach temperatures below 10 milliKelvin (close to absolute zero, i.e. -273.14 °C), is essential for fundamental physical research in fields as varied as the detection of dark matter or microscopes to explore the infinitely small. It also appears particularly promising to support ongoing research projects on quantum computers.

With this investment, Air Liquide can now offer its customers a complete range of products and services across the entire cold chain, from 300 Kelvin (ambient temperature) to now less than 10 milliKelvin (-273.14 °C). Expert in extreme cryogenics for 60 years, Air Liquide designs and supplies its customers with systems for cold production, liquefaction, storage and distribution of cryogenic fluids, for applications in fields of scientific research, such as the ITER project, and in the aerospace and space fields, such as the Herschel and Planck satellites, or the Melfi space exploration program aboard the International Space Station.

**Emilie Mouren-Renouard**, Member of the Air Liquide Executive Committee, in charge of Innovation, Digital & IT, Intellectual Property and Global Markets & Technologies World Business Unit, said: ***"We are delighted to welcome Cryoconcept employees to Air Liquide. Their skills, combined with Air Liquide's expertise in very low temperatures, will enable us to offer our customers an ever more comprehensive range of products and services. This approach also illustrates the commitment of our teams to push back the frontiers of science and technology through breakthrough innovations to meet the needs of tomorrow's world."***

### **Global Markets & Technologies (GM&T)**

The Global Markets & Technologies (GM&T) World Business Unit delivers technological solutions - molecules, equipment and services to support the rising markets of energy transition and deep tech in order to drive Air Liquide sustainable growth. GM&T employs 2,000 people worldwide, and in 2019 generated a turnover of 552 million euros.

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<sup>1</sup> The principle of the dilution refrigerator is based on a mixture of helium 4 (He4) and helium 3 (He3), two isotopes of helium, i.e. they have in their nuclei the same number of protons but a different number of neutrons, which gives them identical chemical properties but different physical properties. Pure helium-3 is the liquid with the lowest boiling point that exists. Helium 4 is what is commonly referred to as "helium".