PRESS RELEASE

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Air Liquide supports sustainable glass bottle production with hydrogen combustion technology

In a move towards sustainable manufacturing, Air Liquide Japan, Nippon Yamamura Glass Co., Ltd. and Yamamura Seibinsho Co.,Ltd. have successfully tested glass bottle production using hydrogen as a partial fuel source, with the potential to reduce CO_2 emissions.

This initiative was carried out at Yamamura Seibinsho who currently possesses the only oxygen combustion furnace for glass bottle melting in Japan. **Air Liquide Japan supplied hydrogen gas for the combustion process as well as a proprietary burner specifically designed for hydrogen injection.** The strong collaboration between Air Liquide Japan, Nippon Yamamura Glass, and Yamamura Seibinsho led to the success of this manufacturing test, where bottles produced using hydrogen with oxy-combustion maintained the same quality as those made with conventional oxygen combustion, while also achieving a reduction in CO_2 emissions.

Decarbonization presents an urgent challenge for the glass industry, and hydrogen, which produces no CO_2 when combusted, is projected to play a key role. Air Liquide Japan has been **contributing to these customers' improved combustion efficiency and the reduction of CO_2 emissions** by integrating oxygen combustion technologies with optimal gas supply solutions. Implementing partial hydrogen fuel replacement, could have the potential to advance decarbonization in glass manufacturing.

The glass bottles produced in this initiative have been adopted by Suntory Spirits Limited's wine, "SUNTORY FROM FARM Tomi no Oka Aka Toki-no-Kasane (using CO_2 reduction glass bottles)", and will be sold at the "SUIKUU" restaurant at Expo 2050 Osaka Kansai venue.

Koji Makihara, President and CEO, Air Liquide Japan stated: ***"As a leading company in oxygen combustion technology for many years, Air Liquide Japan has been supporting its customers' efforts to improve combustion efficiency and decarbonize through a wide range of technological solutions. We are very pleased to have demonstrated the new potential of hydrogen utilization in domestic glass bottle manufacturing through the collaboration with Nippon Yamamura Glass and Yamamura Seibinsho. We believe that Air Liquide's comprehensive knowledge of hydrogen will significantly contribute to our customers' sustainability initiatives."***

Air Liquide in Japan

Air Liquide has been present in Japan since 1907, and has been contributing to the development of Japanese industries for over 100 years. Supported by a highly-skilled workforce of approximately 2,000 employees, The Group supplies key molecules to companies in electronics and other industrial fields, collaborating with our clients in problem solving and joint research.

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